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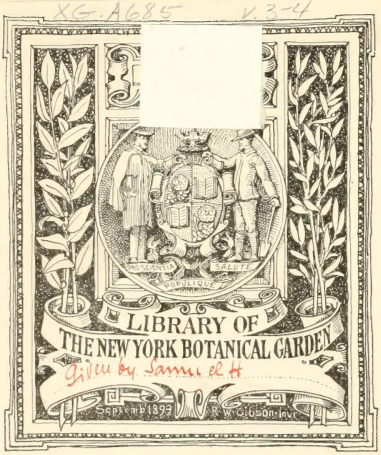
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GARDENING

VOLUME III.

September 15, 1894 to September 1, 1895.

CHICAGO:
THE GARDENING COMPANY.
1895.

A685
V. 3-4

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GARDENING

Vol. III. | $2.00 A Year. 24 Numbers. | CHICAGO, SEPTEMBER 15, 1894. | Single Copy 10 Cents. | No. 49.

THE MOUNTAIN LAUREL [illegible] IN ITS NATIVE WILDS

Trees and Shrubs.

MOUNTAIN LAUREL (*Kalmia latifolia*)

We are indebted to Mr. A. Blanc, of Philadelphia, for the beautiful photograph from which our illustration is engraved. It shows the mountain laurel at home in all its glory; and among our native shrubs what is more glorious? According to the Tenth Census Report, this kalmia grows wild from "New Brunswick and the northern shores of Lake Erie, south to western Florida, and through the Gulf states to western Louisiana, and the valley of the Red River, Arkansas. A small tree * * or more often a low shrub; rich woodlands; most common and reaching its greatest development in the southern Alleghany mountains, here often forming dense, impenetrable thickets."

It is very abundant in the woods hereabout, forming a dense or scattered underbrush, and extending to the outskirts, it becomes a handsome bank of living green. In old fields too in the neighborhood of rocky and hilly woods it is also found. It is in bloom about the middle of June, and what a profusion of loveliness it forms.

At the same time, notwithstanding its great abundance in a wild state, and how very desirable it is as a garden shrub, it is quite an uncommon plant in our gardens, not only that, but it is also an uncommon plant in our nurseries, in fact only a few nurseries keep a stock of it. What is the reason of this? Because it is so hard to transplant successfully. If you think all you have got to do is to take a pick and a spade and go out into the woods and dig up all the mountain laurel you want and plant it in your garden to have a beautiful shrubbery bed, do please try it, and a year from that time kindly drop us a note giving your experience. The plants take about that long to die out.

Isn't it possible to get them to live? Yes. Select isolated plants in hard or gravelly soil in preference to soft and loose earth, cut them back pretty hard and dig them up very carefully in September, saving every root and rootlet and keep these moist; transplant at once into a sheltered part of the garden in fresh (but not fatted with manure) soil and mulch the ground with leaves. Keep them there for one to two years and then transplant those that have lived to your shrubbery bed. Better still, dig up the young seedlings, say from six to ten inches high and treat them in the same way, or rather plant them at once into a cold, east-facing, frame, protect them there over winter, and plant them out in nursery rows in a sheltered (not a hot, sunny place) spot, and cultivate them there for two or three years before planting them out permanently. It can be raised from seed too, but this is such a slow and tedious process that several of our nurserymen find it more profitable to buy seedling a few years old in Europe and grow them on, rather than raise their own to begin with.

Where only a few plants are needed it is much better to send to a nursery and get good rooted, stocky plants that are sure to grow, than undergo the bother and mortification of digging up and trying to grow the wild plants.

As mountain laurel green has become a staple article of commerce at the holiday season, vast quantities of it being used for evergreen ropes, wreaths, and other evergreen decorations at Christmas, enormous quantities of it are gathered for this purpose, which means a sad and often wanton havoc among the wild plants.

HEDGE PLANTS FOR WASHINGTON, D. C.

The trifoliate citrus, *C. trifoliata*, has not been sufficiently tested to definitely settle the northern limit of its hardiness. [We have it at Dosoris, but it is far from being quite hardy with us.—Ed.] It has succeeded for several years in withstanding the winters in central New Jersey and around Philadelphia, where it is reported to ripen its fruit. Here in Washington it is perfectly hardy. It has been growing outside in pretty exposed positions for the past fifteen years; for the last eight years it has bloomed annually and ripened fruit with good seed before the cold weather came along. Judging it by the growth it makes here it is well adapted for a hedge bush, it makes an astonishingly quick impenetrable growth. The free use of the hedge knife on the young plants does it good in inducing it to send out growths from the bottom. It has long formidable spines on all the shoots with small trifoliate leaves. It is quite an ornamental plant both in winter and summer. When the leaves drop off the branches remain a rich dark green color. There is a near relative of the above called *Citrus australis* with a very neat habit; it is not such a strong grower and the leaves are not divided. The Agricultural Department is at present experimenting with it in the way of testing its hardiness in different parts of the country.

Aralia pentaphylla is the name of a Japanese plant which has been tried here for several years as an ornamental hedge plant and found very satisfactory. It is a slender but dense grower and easily kept in shape. [Perfectly hardy in the north.—Ed.]

Osmanthus ilicifolius resembles the holly so closely that most people are deceived with it. It is from Japan and quite hardy here but it is doubtful if it will stand out much further north. [We have two good old plants that have lived outside for several years but they are not reliably hardy here.—Ed.]

The Japanese and Chinese privets *Ligustrum Japonicum* and *ovalifolium* from Japan and *L. lucidum* from China are all highly ornamental hedge plants. If planted in sheltered situations they retain their beautiful foliage all through the winter. These plants won't stand the winters of many places. In locations where their hardiness is doubtful it would be well to experiment with a single plant, if successful this will soon send out growths which root as cuttings with great freedom, they produce seeds very freely and the fruit is quite ornamental during the late months. [The *ovalifolium*, which is what is known as the Californian privet, is hardy at Dosoris, the others named are not.—Ed.]

G. W. O.

TRANSPLANTING TREES.

Begin as soon as possible. If you have both evergreen and deciduous ones to move, do the evergreens first. If you move them now they will have a chance to make a supply of fresh feeding roots before hard frosty weather sets in, for they have two or three months yet, enough to give them a good start in life. Before planting see that the roots never get dry or are exposed to sun or wind; cut back the wounded and broken roots to sound wood with a sharp knife or shears and head in the branches if admissable. In planting, dig deep, wide holes, removing the poor dirt and replace with good earth, pack the dirt firmly in the bottom of the hole, setting it up in the middle in a hillock or mound, not unlike a basin turned upside down. Set the plant in the top of this little mound, and with a string, rod or pole stretched across the mouth of the hole see that the tree stands at about the same depth as regards its roots as was the case with it where it grew before; spread out the roots on all sides, working fine mellow soil between them, then fill up with good soil and tamp the ground firmly. At this stage we always give the trees a thorough watering, enough to soak the earth clear through to the bottom of the holes, but many planters object to this watering. Our answer to their objections is "Look at the results, the trees there speak for themselves." And for a week or ten days after planting the evergreens, unless in rainy weather, sprinkle the plants overhead with water from a hose, syringe, or easier still, from a water pot and rose, twice a day if the trees are fine and you wish to make their lives quite certain. In winter mulch the ground under and about them with tree leaves to lessen the severity of the frost in the rootlets.

Treat deciduous trees and shrubs in practically the same way. But don't spare the knife. Head in the top, and cut in the side branches pretty hard. If the leaves are still upon the trees, strip them off with a sharp knife; rubbing them off would be all right if it wouldn't disturb the buds, should it do this though, don't rub them off, but cut them.

A gentleman visiting Dosoris not long since told us that A. B., an extensive planter, didn't believe in heading back or cutting in trees at planting time, it was all nonsense. "All right," we said, "come and see. You remember that handsome specimen of *Prunus augustifolia* we moved last April as it was bursting into bloom, and how careful we were about it, we didn't cut it back at all as we wished to save its dense and handsome head and its cloud of flowers. All went well for a time, the flowers blossomed out a snowbank and the leaves began to grow, and up till the end of May it looked like a success. But dry weather set in in June and staid in, and our Chickasaw began to fade." "Yes, I remember," he remarked, "it died." "No, it didn't," we replied, "a few days after you saw it then, feeling assured to keep it as it was would be certain death to it, we sawed every limb back to within a few inches of the trunk, and now look at it, a mophead of vigorous, healthy, leafy shoots." After sawing off the branches we gave a barrel of water to the roots, and sprinkled the trunk twice a day for a fortnight. This tree had not been previously prepared for transplanting by root cutting and branch pruning.

MAGNOLIA GRANDIFLORA IS HARDY IN TENNESSEE.

Apropos to the inquiry of E. O. N., Tennessee, in GARDENING, August 15th, page 386, let me tell you about my trees. Knoxville, as you are aware is in East Tennessee, the cold section of the state. Two of my plants of *Magnolia grandiflora* measure respectively one foot above the ground, twenty-one and twenty-six inches circumference of trunk, and their spread of branches is fifteen and seventeen feet. They are fifteen years old and twenty feet or more high.

They have never been injured by the

MAGNOLIA P. PARVIFLORA

severest cold we have had, and we have had the mercury down to 17° below zero. Several winters ago we had it at zero to 6° below, lasting for a week, which was a very unusual spell for this section. Fortunately my magnolias were not injured by the severe freeze that did so much damage to vegetation in the South last Easter. This applies as well to all other magnolias in the town. In fact, my trees are more exposed than any others. This spring freeze did me serious injury. My *Magnolia stellata* was cut down to the ground.

My weeping cherries, *Prunus pendula*, were just through blooming and I was obliged to cut the branches away back, one is high-grafted, the other low. The low one I trained to a stake till it was about fifteen feet high. It was white in bloom, a beautiful sight. A fountain of pink blooms. They were just through blooming.

A wistaria which covered an iron frame four feet square at the base and twenty feet high, at the time was covered with thousands of blooms, and it came very near being killed. I had it cut back to the main stalk and it is now recovering. I will not enumerate all the trees and shrubbery that were then injured or killed. Suffice it to say that I never want to see such another freeze. W. S. M.

Knoxville, Tenn.

MAGNOLIA PARVIFLORA.

This is a hardy deciduous shrub or small tree, indigenous to Japan, and one of the gems of our gardens. In GARDENING, page 8, September 15, 1892, there appeared an illustration showing this species, together with *M. Watsoni* and *M. hypoleuca* in one group, thus affording us an opportunity of seeing and comparing them together. More than that it was the most natural and truthful picture of these magnolias ever published. But in that picture *M. parviflora* was shown to such poor advantage that we felt it to be our duty to show it in more perfect form and with good foliage, so we had this spray photographed early last June.

Small plants not more than fifteen inches high bear blossoms, and as they increase in size and vigor year after year, so does their crop of blossoms increase in proportion. The flowers are pure white, ovate to round in the bud, opening round and expanding to saucer shaped, three and a half to four inches across. In the middle is a close bunch or cone of bright red stamens that contrast strikingly with the pure snowy petals. When growing on the bushes the flowers are nodding, that is most of them are drooping face down, in this point they differ from the flowers of every other hardy magnolia we grow.

The Chinese and hybrid deciduous magnolias as *conspicua*, *Soulangeana*, etc., begin to bloom before the leaves appear but this Japanese little beauty, as well as its contemporaries *Watsoni* and *hypoleuca*, not till their leaves begin to grow so that we get both foliage and blossoms at the same time, thus enhancing their beauty. And they last several weeks in bloom. In the case of *parviflora* too, we get a second crop of flowers later in summer, but not such a heavy one as *cordata* gives. While *Watsoni* is the strongest scented of all our hardy magnolias and *hypoleuca* next, *parviflora* is only slightly fragrant. But the rose bugs seem to be just as fond of it as they are of the others, and this means that in the rose bug season, from June 3 till July 10-15, we cannot get one perfect blossom unless we protect it against this pest.

This magnolia likes good ground, moisture and shelter, but not shade, and it is worthy of it.

THE JAPANESE ROSE RUGOSA.

This hardy Japanese rose (*Rosa rugosa*) in its white and pink forms is now developing its showy heps, the fruitage of its first, and most profuse bloom, and is at the same time producing, as it will continue to do for a long time, scattering blossoms as well. At all times during the summer a well grown bush will have some flowers. While the large, sweet scented, single blossoms, set against its most charming foliage is an attractive feature there is an added beauty when the heps, large as cherries, have assumed the color of maturity. From the white flower comes an orange yellow and from the pink, a bright red and glossy hep. I use this rose for a low hedge, and a more happy selection could hardly be made. To one living in a trying climate, far away from the home of the Cherokee, there is something poetic in the thought of a hedge of roses. We dream of them, but in that dream come insect pests, winter-kill, whale oil soap and helleborc, until we become disgusted, and wake up and conclude to banish all roses from the list of available plants for hedges, but we need do so no more. Here is a rose perfectly hardy in most trying climates, free from all insect attacks, standing hot suns and moderate drouths, nearly always in bloom, extremely handsome in its dark wrinkled, leathery foliage and attractive in its bright colored heps. For shrubbery belts it is well suited, and a good companion to the equally hardy *Rosa rubrifolia*, a European importation which our insects seem to avoid. W. C. EGAN.

Chicago.

TEAS' WEEPING MULBERRY.

I note what you say about growing this on its own roots. Are you quite sure this would be the correct thing? The original tree of this sort was grown from seed by J. C. Teas of Carthage, Missouri, some twelve or fifteen years ago. The original has always run on the ground like a pumpkin vine. The last time I saw it, it was eight or ten feet long, but none of its branches reaching upward more than one and one-half to two feet. It is claimed by some who have grown it, that it never develops any stiffness, or ability to stand upright. We now have a fine specimen, about nine feet high, two inches in diameter at the ground, that has been tied to an iron rod, driven into the ground. Wooden supports, large enough to be lasting are unsightly. I doubt whether many planters will be satisfied with trees on their own roots. If this style does become popular, it will be a boon to nurserymen; as this is a very difficult tree to graft. E. Y. T.

Irvington, Indiana.

There are three specimens at Dosoris, one seven feet, another nine feet, and the third eleven feet high, and all on their own roots, with stems as stiff as a post; and the last two are still going upward. But they won't go up alone, they have got to be trained up to a stake; when once up however they stay up without the help of any support. When you come East don't fail to come out here and see them.

THE UMBRELLA PINE OF JAPAN (*Sciadopitys verticillata*).—Let us give an English opinion: "Where the rhododendron thrives the sciadopitys will grow. Want of attention to this simple fact has been the cause of much disappointment. If the sciadopitys is planted in a soil sufficiently retentive to supply a constant sup-

ply of moisture to the roots during the growing season, there is scarcely any department of ornamental planting into which it may not be introduced with excellent effect. Wood alone is to be sure, at the same time far too restricted. While the umbrella pine will thrive wherever the rhododendron will in the open, rhododendrons will thrive in the shade, and it won't, and it will thrive in open sunny exposures where a rhododendron would burn out. And it is hardier than our rhododendrons. The largest umbrella pine at Dosoris is 15 feet high and a perfect specimen from the ground to the tip, and it is growing on a south facing slope, on sandy land, with a scattering of other trees near it. But we mulch the ground about it heavily every year, were it not for this mulching it would burn out.

CEDRUS ATLANTICA ARGENTEA is the name under which the beautiful glaucous Mount Atlas cedar tree is now being advertised. Get it, cost what it may. The specimen at Dosoris is, we believe, the handsomest tree of its kind in the country. It is the tree before which, two months ago, that veteran arboriculturist Josiah Hoopes, of Westchester, Pa, uncovered his head and declared "That is the loveliest tree I ever saw in my life either in this country or in Europe." You will find a picture of it in GARDENING, page 163, February 15, '94, engraved from a photograph of it taken some years ago. But it has grown and improved in appearance immensely since then.

FRAXINUS MARIESII is a flowering ash tree from China. It forms a small tree or large shrub with pinnate leaves—two pairs and a terminal leaflet—and it is said to have pure white delightfully fragrant flowers. Has anyone tried it here?

The Flower Garden.

THE FLOWER GARDEN.

Because the season is pretty well advanced don't neglect the flower garden. Keep everything neat and clean and appearing to the best advantage. Although the summer has been so very dry that Japanese anemones are short, and there is hardly any second crop of delphiniums, and the salvias have made poor flowers, and the asters haven't grown to half their size, and so on through the whole garden, we have much to be thankful for, and we can note a few lessons.

Among annuals, French marigolds, gaillardias, globe amaranths, petunias, zinnias, sweet alyssum, Drummond phlox, nasturtiums and verbenas have done exceedingly well. So have the nierembergias, blooming all the time.

Single flowered geraniums have stood the drouth better than double ones; on the other hand as soon as the rain came it destroyed the show of singles more than of doubles.

Nothing has bloomed better than the blue and white Cape plumbagos, and the white, red-eye, and purple flowered vincas.

The summer hyacinth in succession has been blooming for months, *Clematis paniculata* is a snowy fleece, *Pyrethrum uliginosum* is nearing its best, perennial sunflowers and asters of several kinds are in good bloom, early planted carnations have many fragrant flowers, we are cutting June-planted gladioli, cannas are in the height of perfection, where dahlias do well they are in fine form, the later tritomas hold aloft their fiery torches and all manner of vines—moonflowers, dawnflowers, cobæa, lophospermum, white, and blue solanums, aristolochias, and others are in their heydey.

WORK TO DO IN THE BORDERS.—Pull out all old waste annuals, their presence after their beauty is passed is an eye-sore. Cut over all dead stems of hardy perennials, and strip off dead and decaying leaves and clear them all away. Put a stake to the hardy asters, and sunflowers in the borders to make them look tidy, but tie them up loosely and don't let the stake appear near the top of the plants, nor the tying be visible. Any seedlings that spring up in the borders, if needed may be saved either where they are or lifted and planted thickly in another reserve bed to be kept there till next spring. Among such are hollyhocks, delphiniums, coreopsis, centranthus, pyrethrums and the like in the way of hardy perennials, and coreopsis, larkspur, poppies, gilias and the like in the line of annuals.

Pick up all the pansies that are coming up in the borders and plant them somewhat thickly in store beds by themselves outside or in frames. And you had better sow some more for spring blooming outside.

Get together your daisies. Even the old dried up roots, if they show a few pieces having green leaves will, if lifted and planted in a frame, recuperate wonderfully before winter sets in and form a solid mat before spring.

Gather together the little forget-me-nots to winter in a frame for spring planting, or failing that sow some *dissitiflora* seed in a box or frame for flowers next spring.

Although Canterbury bells may prove hardly enough mixed among the other plants in sheltered borders if they are covered a little in winter, we get our plants together about this time and plant them in a cold frame, from which we transplant them to the open border in spring. Plants raised from seed now, unless grown in a cool greenhouse all winter are apt to be too late for blooming next spring, for really the plant is a biennial, and not an annual.

Crown anemones, *Heuchera sanguinea*, and some others we raised from seed and have now in boxes we will plant thickly into a frame to stay there till spring, when we shall set them outside.

Gather all the seeds you want, for your own saved seeds, if your flowers had been good, are as good as what you can buy. Among these seeds may be zinnias, Drummond phlox, salvia, petunias, coreopsis, sweet peas, nasturtiums, mignonette, gaura, marigolds, sweet alyssum, stocks, asters, and so forth. Speaking of mignonette, reminds us that we heard recently that there is no white fragrant mignonette, what is known as the white mignonette (*Reseda alba*) is a perennial and not fragrant at all. Now that is all nonsense. *Reseda odorata* only is mignonette, *R. alba* isn't mignonette at all. But aside from that, we grow Garraway's white mignonette, and it is just as white as *R. alba*, and as fragrant as any other mignonette. At the same time alongside Machet and such other large flowered sorts it isn't worth growing. As a general thing these kinds are very little grown except in greenhouses, but they are just as good for outside work as Miles' large-flowered, Crimson King, Golden Queen, or any of the other common sorts.

PROPAGATING PLANTS FOR NEXT YEAR.—We always put in a stock of cuttings of geraniums, ageratum, coleus, alternanthera, double petunias, and the like in August or September—this year in August and they are all rooted and boxed and potted off now—because it is so much easier to keep them over winter than it is to lift a lot of old plants and save them. We make the cuttings in the ordinary way and plant them in a bed of sand on a bench in the greenhouse, but in boxes filled with sandy loam, or in a frame, or in fact a shaded border will do.

But there are lots of plants we cannot treat in this way, for instance abutilons, hibiscus, cassias, lemon verbenas, and acalyphas, wood of them made out of doors does not strike easily. We keep over a few plants in pots of them in summer and grow them in the greenhouse to get more tractable wood from indoors. We may except the lemon verbena, we wait in its case till we get the young growths in spring; or take the ripened wood and cut it into short lengths which we stick into the ground in a pot or box indoors, or for that matter out of doors in spring, like a grape vine or currant cutting, and they will grow.

Salvias, cassias, grevilleas, vincas, pepper trees, blue gum trees, and the like, all prefer to raise from seed every year, sowing as early as January or February.

BULBS FOR THE FLOWER GARDEN.

The floral display in our gardens in spring depends largely on the number and variety of bulbous plants we have growing in them, and now is the time to attend to this matter. Tulips, hyacinths and narcissus furnish the bulk of the bulb show in spring, but there is a host of other kinds that we ought also to grow. All the varieties of these bulbs that are best for indoor culture are also the best for growing out of doors, but while every kind grows well outside, only certain varieties are satisfactory indoors. Let us deal with them in detail.

TULIPS.—All kinds of tulips grow well and bloom well out of doors, but the varieties used most out of doors are the same as what we grow in the window or greenhouse, see GARDENING, page 409. But don't restrict yourselves to that list. Start at the beginning with Due Van Thol, mixed and Tournesol, and end with the Bizarres, Byblœmens, and Darwin tulips, and that brilliant beauty Gesneriana. For formal beds those of neat habit, stocky growth, and fine distinct showy flowers should be chosen. Good among these are Bacchus, dark crimson; Belle Alliance, dark scarlet; Brutus, orange crimson with yellow margin, Chrysolora, yellow; La Reine, white tinged with rose; Rosa Mundi, faint purplish rose; Rose Grisdelin, rose and white; and Yellow Prince, yellow. And we can hardly omit Duchess de Parma and Keizer Kroon, both reds margined with yellow; the Pottebakker varieties, scarlet, white and yellow; Royal Standard, white feathered with rosy crimson; and Wouverman, deep purplish violet. Of these named Bacchus, Brutus, Duchesse de Parma, La Reine, Rosa Mundi, Wouverman, and Yellow Prince, bloom at the same time, and at the planter's discretion can be used in panels or rings in the same beds where all are required to be in flower at once.

Among double tulips the Tournesol varieties, which are early blooming, are most grown. But also get La Candeur, white; Rex Rubrorum, bright red, Gloria Solis, reddish brown with yellow edge, and Yellow Rose, yellow. These are late

PARROT TULIPS

flowering and fine. All the double flowered varieties bloom well planted out in the garden.

Don't omit the parrot tulips. They are happily among the cheapest and they are late blooming. Their peculiar fantastic forms and rich coloring render them great favorites as cut flowers especially with people who aspire to artistic or esthetic tastes. They are hardy, easy to grow, and fine for cutting. Our illustration is engraved from a photograph of a bunch of these tulips taken at Bosoris last May.

Tulips grow well in any ordinary garden soil, but if it is deep, rich, somewhat sandy, and well drained so much the better, and if the conditions are to their liking they are long lived and multiply freely. While it is well to get them into the ground as soon as possible October is the principal month for planting them, in the case of beds we cannot help this because the beds won't be cleared of their summer occupants before that time. While it is all right to fill the beds with a dense array of tulips, we confess to a weakness for growing them in narrow borders very thick, and all kinds mixed together, then we get flowers from the same patch from early in April when the Duc Van Thol appears, till the Gesnerianas and Yellow Rose are in their heyday well nigh the end of May. When the earlier varieties bloom and their petals fall we cut off their seed heads, and everything is neat. A belt of this sort is illustrated in GARDENING, front page, September 15, 1893.

HYACINTHS.—All Dutch hyacinths grow well out of doors and bloom without any difficulty. What are best for indoors are also most showy outside, but so very well do hyacinths bloom in the open ground that we usually get the cheapest kinds for this purpose. The single varieties are the finest, but all the doubles also do well. The first planting will bloom well no matter how poor the ground may be, but if you want the bulbs to live and do well in after years give them good ground, such as we have advised for tulips. The following are quite good cheap varieties: Alba superbissima, Blanchard, Madame van der Hoop, Baroness Van Thuyll, white; Grandeur à Merveille, and Voltaire, blush; Norma, Fabiola, Gertrude, pink; Cosmos, Gigantea, rose; Amy, Bouquet Tendre, Robert Steiger, red or crimson; Czar Peter, Leonidas, pale blue; and Blue Morant, Charles Dickens, La Peyrouse, and William I, other shades of blue. Among double flowered sorts La Tour d' Auvergne, white; Garrick, blue, and Lord Wellington, blush, are very good.

NARCISSUS.—In the southern states all kinds are hardy, but about New York the polyanthus section is tender. But the finest of all narcissi, namely, the large flowered daffodils like Horsfieldii, Emperor and Empress, and Trumpet Major are perfectly hardy, so are Orange and Silver Phœnix, Sir Watkin, Stella, and all others of that section. We find too that in good ground in a warm exposure jonquils and biflorus are hardy enough and increase considerably. The poet's narcissus comes in a little later, and both the single and double varieties, and ornatus the early blooming varieties are very hardy, easy to grow, sure to bloom, and long lived. We find that all kinds of narcissus like good, deep, rich soil, and a sheltered, warm spot. It doesn't matter whether they are grown in the borders or in the grass. The poet's varieties look very pretty scattered among the grass near the outskirts of the lawn fringing the wood or shrubbery, and where the grass isn't cut over before June. All the large yellow daffodils look well in clumps or scattered in the vicinity of water, that is on the grassy banks, they also look well in borders, and among other plants in beds, but alone in a bed they have an artificial appearance. Plant them according to size, three, four, or five inches under the surface of the ground, the lighter the ground and the smaller the bulb the deeper your plant. We know this isn't as deep as is usually recommended, but it is what we practice and we get good results. We have killed a good many bulbs by over deep planting Like lily bulbs they work their way down. And by a mulching of loose fine manure over the ground we can protect them from severe frost in winter and in this way give them the equivalent for deep planting just at the time they most need it.

SNOWDROPS.—Plant them about three inches deep in the grass on the lawn or in the borders, setting one to five bulbs together, as you wish to have them singly or in clumps. Make the holes with a pointed stick or dibber, drop in the bulb, top up, and press the sod or earth down over it with your foot to close the hole. Don't plant the common variety, it is too small, get *Elwesii* instead.

CROCUSES.—Plant one to three together in good ground, and as recommended for snowdrops. They are very cheap, get lots of them. Nothing is more cheerful in spring. Get the large flowered varieties of golden yellow, blue, white and striped. While they like sunshine when they are in bloom they are better to have a little shade after that.

IRIS.—There are lots of bulbous irises, for instance *reticulata*, a little beauty that blossoms when the crocuses do, and which every one should own. What are called English, and Spanish irises are quite cheap and they make a fine show in early summer. Treat them as you would daffodils. The Spanish irises bloom first, the English ones a fortnight later. There are other fine species as *Persica* and *Susiana* but they need an extended notice for themselves.

SIBERIAN SQUILLS (*Scilla Sibirica*) come into bloom a little later than the crocuses. They have intense blue flowers and thrive where the crocuses do. Get *S. bifolia* too, it is somewhat like the Siberian Of the *S. campanulata*, a large and later blooming species there are blue, white and rose colored varieties, a half dozen bulbs of each—enough for a clump should be enough to begin with.

GLORY OF THE SNOW (*Chionodoxa*) looks much like a Siberian squill and needs the same treatment. It is lovely. The commonest one, namely *Luciliæ* is still the best.

OF DOG'S TOOTH VIOLET (*Erythronium*) the European sorts (*Dens-canis*), and the Western one (*grandiflorum*) are the most desirable, and both are very easy to grow in rich somewhat moist soil, shaded from warm sunshine.

THE GUINEA HEN FLOWER (*Fritillaria Meleagris*) is a nice thing to plant in the borders in the front near shrubbery where it can run wild. The flowers are quite striking, and under good cultivation the plants bloom freely year after year.

CROWN IMPERIAL (*F. imperialis*) —A more vigorous plant by far, and an old fashioned favorite, but it requires good ground and good cultivation, such as one would give to choice daffodils to get it to bloom year after year. To begin with a few bulbs will suffice.

NOTES FROM EGANDALE NEAR CHICAGO.

THE GOLDEN ALSTROMERIA (*A. aurantiaca*), a native of Chili, opened its flowers with me on June 15. Being sown what shaded from the afternoon sun it has not felt the effect of the continued warm weather, and has therefore bloomed constantly and is still full of promise. Its orange colored, orchid like flowers are very pretty, and not being grown by many in this climate on account of its somewhat tender constitution, it attracts attention. Plants receiving the ordinary covering of leaves in winter live in well drained soil, but do not bloom. Those planted in wire baskets and wintered in a cold frame and again planted in the spring, basket and all, thrive well and flower freely.

THE DOUBLE-FLOWERED PERENNIAL SUNFLOWER (*Helianthus multiflorus plenus*) of unknown garden origin, is in its prime, the first flowers appearing July 8. For effect it should be massed, a dozen or more plants in a group. A fairly good soil, an open situation and moderate watering, will produce plants five feet high, clothed from the ground up with dark green leaves. The flowers are very double, three to three and one-half inches in diameter, of a golden yellow color and produced on long stems which, with the excellent keeping qualities of the flower, render them valuable for cutting purposes. This hardy sunflower should be in every garden—it is a gem of the first water.

HYBRID DELPHINIUMS that were cut down after their first bloom are now opening their second crop, which, while not as profuse as their earlier efforts, are still quite welcome. These plants will thrive in partial shade, but grow so tall that ungainly staking is required. In the open they are more easily handled. These with *D. formosum* and *D. grandiflorum* are very hardy and reliable.

MONARDA DIDYMA and *M. fistulosa*, while coarse in their make-up and perfume, are quite effective where color is desired in a shrubbery border; the first has bright red flowers and the other one light purple. There is a form now in bloom on the Wooded Island more brilliant in masses than either of the above.

ACANTHUS MOLLIS and *A. latifolius* have been bearing their odd shaped spikes of flowers three feet high for some thirty days, they may be termed more stately and peculiar than beautiful. Their broad, glossy, deeply cut leaves are handsome and well suited to tropical gardening. But they are not hardy and must be wintered in a cold frame.

BOCCONIA CORDATA, termed the plume poppy, bloomed in July, but its glaucous, cordate, heavily lobed leaves, of large size, are still quite attractive when grouped among shrubs. The plant grows five to seven feet high, producing numerous feathery light buff color d flowers on spikes held well above the foliage. It should be planted in a bottomless box or keg to prevent it suckering, and it should be well protected with leaves in winter.

CATAXANTHE CERULEA has been in bloom over two weeks and is still in its prime. It belongs in the shrubbery to interest day visitors, as it closes its flowers at sun down. They are carried well above the foliage on stems eighteen inches high, light blue in color, with a dark purple centre, and by many are taken for the old fashioned blue bottle (*Centaurea cyanus*). It is very hardy and reliable [and easily raised from seed, Ed].

LYCHNIS CHALCEDONICA. The double form of this Russian scarlet lamp flower is so superior to the single that there is no comparison. Its bloom is now on the wane, but for over a month in a partially shaded position, a group of a dozen plants has been very attractive. Its brilliant, dense clusters of bloom are carried well above the foliage and attain a height of three feet. It is perfectly hardy.

SPIRÆAS. The herbaceous *S. lobata* has still left a few of its handsome feathery peach blossom blooms, terminal on long stiff stalks. A mass of this Queen of the Prairie, in a damp spot, is a handsome sight.

SHRUBS. *Spiræa Douglassi* and its California variety *S. Nobleana* are rather pleasing shrubs growing three feet high, producing at this season slender rose colored panicles above the tips of the foliage. *S. tomentosa*, a somewhat similar form, is also in bloom. *S. Billiardi* and the various catalogued forms of *S. Japonica* are making their second crop of blooms, the first having been cut off. These are low growing shrubs producing their pink or white flower heads in flat terminal corymbs, and are valuable in flowering at a season when most shrubs are at rest.

CLETHRA ALNIFOLIA, growing in a partially shaded position has white, sweet scented terminal racemes that gladden the hearts of the bees. It grows four or more feet high and is a welcome addition to the shrubbery.

HYPERICUMS. The hybrid *H. Moseranum* wintered in a cold frame, is just through blooming; *H. aureum* and *H. prolificum* are past their prime, while *H. Kalmianum* is in good bloom. The latter and *H. aureum* are planted in partial shade. This is a beautiful group of plants that should be used more freely in this section. One seldom sees them, and the beauty of the flowers, especially of *Moseranum* and *aureum* always captivates the ladies. *H. aureum* grows about three feet high and produces terminal, light yellow flowers resting upon the dark green leaves of the tips of the branches, which form an emerald setting. The petals, five in number are three-fourths of an inch long, and one-half broad in their widest part, reflexed, and resting upon the leaves. The exceedingly numerous stamens of the same color form a "puff ball" that might be made of silk floss. This "ball" is an inch in diameter and half as high. The reflexing of the petals lessen the diameter of the flower to an inch and a half. *H. aureum* and *H. Kalmianum* are hardy without protection; *H. prolificum* has not passed a winter here yet. *H. Moserianum* should be wintered inside.

ROSA WICHURAIANA, a recent acquisition from Japan, has proved hardy here with ordinary protection except that the tips may freeze back some. It is strictly a creeping rose, taking root at intervals along its branches wherever a favorable opportunity occurs. Its leaves are small and glossy. Its flowers are an inch and a half in diameter, single, pure white, and with numerous yellow stamens. Planted on a slightly raised mound with a pillar rose for a center, it will cover the ground completely and either in bloom or not, it presents a handsome appearance.

W. C. E.

WINTERING VARIOUS HARDY PLANTS.

I have the enclosed list of plants started in a cold frame. I propose pricking some of each out and carrying them over winter in the frame, planting out in the spring. Other plants (of each also) I think of planting out this fall where they are to grow and protect them through the winter, hoping to succeed with one, if not both, systems

1. Will you kindly say if my plan is a good one?
2. What time this fall should I plant out those destined for the outside treatment?
3. How to protect the outside ones.
4. How to treat those in the frame.

Flushing, N. Y. J. B. G.

LIST OF PLANTS I WISH TO KEEP OVER WINTER.

1. *Anemone Japonica alba, A. J. rosea.*
2. *Aquilegia chrysantha alba, A.* Grigor's hybrid *glandulosa.*
3. *Asclepias tuberosa.*
4. *Asperula odorata.*
5. *Boltonia latisquama.*
6. *Coreopsis lanceolata.*
7. *Callirhoe linearifoba.*
8. *Delphinium Brunonianum, D. cardinale, D. Cashmerianum, D. grandiflorum fl. pl.*
9. *Dianthus* double standard, Tree or perpetual, dwarf early Margaret, double rose Margaret, double white Margaret. *D. dentosus, D. barbatus,* Picotee pinks Eastern Queen, Crimson Belle and double white China.
10. *Digitalis grandiflora,* gloxinia-like, *D. purpurea rosea.*
11. *Gentiana cruciata.*
12. *Geum atrosanguineum pl.*
13. *Lobelia cardinalis,* Emperor William, *L. syphilitica.*
14. *Lychnis Haageana hybrida.*
15. *Linaria biennis.*
16. *Myosotis alpestris, alba* and *rosea.*
17. *Nycterinia selaginoides.*
18. *Œnothera grandiflora.*
19. *Papaver orientale, P. nudicaule, P. nudicaule album* and *aurantiacum.*
20. *Pentstemon antirrhinoides, P. Clevelandii. P. heterophyllum.*
21. *Primula Cashmeriana, P. Japonica.*
22. *Rudbeckia Newmanii.*
23. *Stylophorum diphyllum.*
24. *Valeriana alba* and *rubra.*
25. *Verbena hybrida.*

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1. Yes, capital. Not only will you be sure to save some plants of each sort, but it will be a lesson in practical experience worth having.

2. At once. Planting early gives the young plants a chance to make fresh roots and take a good hold of the ground before winter sets in. This is one of the greatest safeguards against heaving by frost. Planting out in fall, if into their blooming places, is apt to give us sturdier plants, hence finer flowers, than we get the first season from spring planted stock.

3. A few tree leaves strewn over the plants and held in place by some dirt, sedge, straw or evergreen branches will save the somewhat tender sorts, or some rough litter or dryish stable manure will answer the same purpose. Some evergreen branches, as spruce, fir, pine, red cedar, or arbor vitæ laid over the plants are excellent in the case of comparatively hardy sorts; they shade them from sunshine and sudden thawing, collect and hold scattering leaves, also snow, and prevent heaving by frost.

4. The frame should face any point from east to southwest, southeast being the most desirable. Its purpose is to act as a storehouse in which to keep certain plants in safety over winter; you don't want to hurry up these plants or keep them in active growing condition as you would pansies or violets, hence the frame should be kept cool. Facing a sunny point instead of a sunless one is to render less covering to exclude frost necessary.

In filling the frame, economize the space, keep the several plants of like nature together, and give each one no more room than is necessary to planting out time next April. Before winter sets in let the plants in the frame have all the weather that comes even to several degrees of frost, and when you do put the sashes and covering on, let it be to keep in the little frost as much as to keep out the hard frost. A mild equable temperature is what we want. Ventilate freely in open weather, but exclude sunshine in win er if practicable, except to dry and sweeten the frame, as we should aim to avoid stimulating the plants into gro ath Expose them freely towards spring, and lift them with good roots and balls in early spring and plant them out of doors in beds and borders.

The list of plants: We have grouped the plants of a kind together and numbered them, to enable us to answer about them more easily.

1. Both of these anemones are perfectly hardy, but if planted now they will make very little root growth this season. We would plant them thicker in a cold frame, just to winter the roots safely and set them out permanently next spring.

2. *Chrysantha* is perfectly hardy and should be planted out at once; if the plants of the variety *alba* are strong, plant them out too, but if weak keep them in the frame. Grigor's columbine, however, should be wintered in the frame. It is a lovely little beauty, hardy but miffy. Treat it as a biennial.

3. Plant out the asclepias roots, they are as hardy as rocks. But beside each root set a deep stout peg to mark the place, for as the tops die down to under the ground, and the plants start to grow quite late in spring we are apt to forget where they are and dig them over.

4. In the frame only. While it might do all right out of doors, transplanted now, it makes so little root growth at this time of year that frost in winter is apt to heave it out of the ground.

5. Plant it out, mark its place with a stout peg, and throw a little light mulch over the crown in winter to keep the frost from disturbing it.

6. Plant it out. Young plants, even as late as this, make good roots before winter sets in. It is quite hardy.

7. Keep it in a frame. We were the first to cultivate this plant. It is easily raised from seed, but it isn't a tough or long-lived plant.

8. *Brunonianum* and *Cashmerianum* may be planted out in dryish ground, and a little rough mulching placed over or around them in winter. *Grandiflorum* is hardy enough, and the deep blue, pale blue and white single flowered forms are very pretty, but we don't think you will care much for the *fl. pl.*, if you have raised it from seed. This species is as easily raised from seed as any annual larkspur, and it blooms the first summer. What is known as *Delphinium Breckii* is simply a deep blue double flowered form of this species. It is good, so too, are the old double blue and pale blue, we used to grow and perpetuate by division, but they are miffy, hence very scarce. The seedling doubles, however, contain lots of trash. *Cardinale* is a tuberous species. Better gather its roots together, winter them in the cold frame and plant them out singly in spring. Although lots of it are raised from seed every year and grown in our gardens, we seldom see it in good condition.

9. *Dianthus dentosus* is hardy and may be planted outside. *Barbatus* is the sweet william of gardens, and may be planted in a bed outside and mulched a little in winter. Tree or perpetual are the same as our winter blooming greenhouse carnations, and need the protection of a frame. If the Margaret carnations have been blooming this summer the same plants are hardly worth saving over winter; raise young plants from cuttings or seed. But if they are young keep them in a cold frame over winter and plant them out in spring. Picotees are a race of summer blooming carnations and should be kept in the frame. Although Chinese pinks often live out of doors over winter, it is always best to give them a frame protection, and plant them out in April.

10. *Digitalis* is the botanical name of foxglove. Seedlings of all three when they come up among the bushes in the garden seem to be perfectly hardy, but in open beds they are not. We plant them in a bed in rows 15 inches apart, and in winter mulch them over with some tree leaves and sedge or branches to keep the leaves in place.

11. If the plants were established outside we should leave them there; but if they are young and in frames we should advise let them alone till spring.

12. Double geums are hardy enough and may be left out or kept in a bed or frame. If the variety is good winter it under cover.

13. In a slightly shaded, moistish, sheltered place the cardinal flower and its varieties live and thrive in our gardens, and we should plant them out now, and lay an evergreen branch over them in winter. The same with the great blue lobelia (*syphilitica*), except that it is a tougher plant than *cardinalis*.

14. If it is outside now let it stay there; indeed young plants may be planted out now and mulched a little in winter. We raise them from seed every year, treating them as annuals.

15. Plant it out in a bed or border, and transplant to where you want it in spring. It is a coarse biennial, but makes quite a show of white flowers.

16. *Myosotis* or forget-me-nots that selfsow themselves about the borders here come up in fall, and live nicely without any further protection than the shelter afforded by the bushes and herbaceous plants, and bloom charmingly in spring. But we find that those raised from seed in the ordinary way aren't quite so amiable, and we give them the shelter of a frame, and then they bloom all the earlier in spring for us.

17. This is an annual. Do you find it hardy with you? It is a gem of a little plant. Sown in the fall, it may live over winter in the frame, but not outside. We have grown it for years as a summer bloomer, raising it from seed in spring. We never tried to keep it over winter.

18. Plant it out, and lay an evergreen branch over it in winter. It is hardy enough.

19. The oriental poppy is hardy enough, and starts to grow a little in fall. Plant it out now. The other two (*nudicaule*) are what are known as Iceland poppies, and although they are very hardy, if the plants are small they are as well in the frame; if large, and the border in which they are growing is raised enough to be above water lying on it at any time in winter, we would as soon plant them out as keep them in the frame.

20. All the pentstemons we should keep in the frame.

21. With considerable care both of these primroses will succeed out of doors, but the best results with *Cashmeriana* are got from the frame, both as regards growing and blooming. We should keep *Japonica* in the frame this winter and plant it out next spring in a moist, faintly shaded, well protected spot, and let the ripe seed fall upon the ground and produce young plants, thus getting up a natural colony of them.

22. Being perfectly hardy, plant it out, and lay a spruce or fir branch over it in winter to keep it from heaving.

23. Outside, and plant it at once. Goodly sized plants don't transplant well unless they are pot grown.

24 Both do well with us out of doors in winter, at the same time as it isn't a castiron plant, it is well to have some young plants kept in a frame and planted out early in spring.

25. In a frame only, and a snug and warm frame at that. As verbenas set seeds so freely, and seedlings grow so easily and bloom so profusely, we never keep over old plants now, the young crop is raised from seed every year.

WILD PLANTS IN BLOOM SEPTEMBER 4.

One of the most beautiful flowers of the season is the cardinal flower (*Lobelia cardinalis*). Tho gh mostly found in wet meadows, it does almost as well in ordinary situations in the garden. Like all handsome flowers it is becoming extinct near our large cities. Another species, the great blue lobelia (*L. syphilitica*), is also a handsome one, and more plentiful here than the other. Both are in fine bloom.

Another bush trefoil (*Desmodium Dillenii*), has come into bloom recently, it is an erect growing sort, bearing purple flowers. *Lespedeza Stiuvei*, a bush clover, grows two to three feet high, in dry soils and bears violet colored flowers. The biennial gaura, a beautiful, tall growing plant with pretty, rosy red flowers graces the banks of the Schuylkill river. Among eupatoriums some are pretty and some not. The hoarhound, which gives us its white flowers now, must be classed with the last. But it is valued for its medicinal properties.

Rain is required to bring along many of our asters. *Puniceus*, the strong growing one found along the ditches, and which has reddish stems and pale purple flowers, is fairly well in bloom. So is *cordifolius*, a bold aster with pale blue flowers, and found in open woods.

The curious parastic beech drops (*Epiphegus Virginiana*) is abundant on the roots of the beech hereabouts. It has dull red stems and brownish white flowers. A botanical friend tells me he has found it growing on the roots of other trees, but this has not been within my experience.

The beggar ticks, cocklebur and bur marigold, all bold weeds, are in bloom but they make no floral show. Golden rods (*Solidago*), display themselves slowly; *puberula*, *almifolia* and *cæsia*, all tall growing, make a fine display of their yellow blossoms, but many other kinds are not yet in bloom. A sunflower (*Helianthus decapetalus*), found along streams, grows three to four feet high and makes a prominent display of yellow blossoms.

The wild radish (*Raphanus Raphanistrum*), yellow flowered, has appeared in this vicinity in some abundance.

The fragrant foliage of the American pennyroyal (*Hedeoma pulegoides*) makes pleasant a walk through dry fields. The horse mint (*Monarda punctata*) is abundant in sandy fields; its yellow and red flowers are very pretty. In the same order are the spearmint (*Mentha viridis*) and the peppermint (*M. piperita*).

On dryish hills, the hawkweed (*Hieracium scabrum*) shows large heads of yellow flowers. In similar places and along hedge rows the wild lettuce (*Mulgedium acuminatum*) finds a place. The flowers are blue.

The water pepper (*Polygonum Hydropiper*), rosy green, and *P. arifolium*, with whitish flowers, grow in wet ground. The hedge hyssop (*Lophanthus nepetoides*), bears greenish yellow flowers.

Among wild orchids we have the beautiful yellow fringed orchis (*Habenaria ciliaris*) which is passing out of flower. It inhabits swamps, whereits bright orange colored flowers make a fine display. Another beautiful orchid, growing in dry woods, is the rattlesnake plantain (*Goodyera pubescens*). It has spikes of small white flowers, and silvery netted leaves.

Philadelphia. J. MEEHAN.

ANNUALS FOR SOWING IN THE FALL.

E. C. W., asks about what annuals he should sow in the fall, and if they can be sown between rows of narcissi planted fifteen to twenty inches apart, thus economising space. There are two classes of annuals to sow in the fall, namely, such as poppies, larkspur, cornflower, mountain fringe, golden corydalis, coreopsis, and evening primrose that we mean to germinate right away and make nice little plants before winter sets in and others as sweet peas, and eschscholtzia, that we want to stay in the ground over winter without germinating till spring.

The object in sowing in the fall is to get good sturdy plants that will bloom early In fact poppies, larkspur, and corn flower sown in fall also make finer plants than do the same sorts raised from seed in spring. And they are perfectly hardy. But there are two draw backs to fall sowing, first, we seldom have the ground cleared and ready for it in time, secondly, unless we have our own saved seed we are not likely to get fresh seed at the seed store at this time of the year, and what sane person would sow old poppy seed knowing it to be such?

While a bed of narcissus in spring set in a carpet of fall sown annuals may sound very pretty, we can assure you, the carpet has a very weedy effect in spring. But we do this very thing. We have narcissi in rows and the whole ground is covered with fall sown poppies; the narcissi bloom in April and May, and the poppies in June. By the end of the month they are mostly over, and we interplant between the narcissus with rose geranium, zinnias or other summer plants.

But aside from sowing in open beds you can sow in patches in the borders or anywhere. Fork over or unfasten the ground as for spring sowing, rake it level and smooth, sow the seed, rake it in lightly, and pack with the head of the rake or back of the spade. Don't cover the seed deep. In winter if the ground is heavy and there is danger of heaving the seedlings spread some light mulching over them.

Sweet peas, portulacca, eschscholtzia, and the like if sown in fall should be delayed till October, for if they germinate in fall the chances are they will get winter killed.

Pansies sown now and pricked off later will winter well. Mountain fringe sown about some bushes or in a sheltered spot will make nice rosettes and run early next spring. Besides the ordinary annual larkspurs the Chinese and other perennial sorts, if sown now, will grow nicely, winter well, and make blooming plants next summer. The same with foxgloves, only the seed should be dropped among the bushes where the little plants can be kept snug and warm over winter, forget-me-nots, the same. Calendulas often live over winter. But Drummond phlox, although pretty hardy, usually succumbs to the changeable and cold spells of late winter, so does mignonette. Although petunias come up in vast quantity wherever the old plants have grown, the seedlings get winter killed Affinis tobacco also comes up in quantity from seed, but gets killed in winter. Although vinca, ageratum, amarantus, and several other common garden plants grow so freely from self-sown seed, not one of them is hardy; indeed, the ageratum excepted, they seldom germinate till danger of frost is past in spring.

Of course there is a long list of annuals that we find recommended for autumn sowing in European gardening books, but our experience limits the list very much. In the south and mild localities elsewhere many annuals thrive better when sown in fall than in spring.

SOME WORTHY ANNUALS.

Of the newer or rarer annuals this season I am well pleased with the Little Brownie marigold. It is a compact little plant, eight or ten inches high and the same in breadth, and makes a fine edging for a border. Its brown and yellow flowers are showy and attractive, and although single I think it much prettier than if it were double. Early and continuous in flowering, strong resistance to drouth and easy to grow are additional commendations. Another fine edging plant is ag ratum Tapis Bleu, which is quite dwarf and compact, very floriferous, of a fine bright blue color, and free from the dirty look that most of the ageratums have.

The little dwarf blue lobelia is also one of the best of plants for an edging, its intense blue color and abundance of bloom make it very attractive. Another fine little plant to which I am very partial is *Gypsophila muralis*. It is nothing like as attractive as the others, and hence is apt to be passed by, but when attention is called to it, the delight is unbounded in its little delicate flowers and the elegant spraying appearance of the plant. The santolina or lavender cotton, with its slender twig-like growth, compact form, grayish or silvery looking foliage, and fine fragrance is another fine plant for the front of the border. This however, is a plant that grows readily from cuttings.

Among the other of the newer annuals in cultivation is *Cassia chamæchrista*, our native partridge pea. This is not a new plant, but it has been strangely overlooked. It grows about two feet high, with acacia-like foliage, somewhat resembling the sensitive plant, and has short slender branches and abundance of bright canary yellow flowers, two of the petals having a brownish purple spot at the base; the whole plant has a delicate airy appearance which makes it a lovable thing. Comet asters are proving very fine. The long wavy pink petals margined with white makes it an elegant, lovely flower, and one of the most desirable of all the asters. Being semi-dwarf and flowers with stems sufficiently long to cut are also in its favor. It must become very popular. Vick's new white branching asters is just coming into bloom. It was elegant with me last year and came at a time when asters were past their prime. It large pure white, chrysanthemum-like flowers, long stems and very floriferous character, make it invaluable for cut flowers when others are getting scarce. It is a novelty of sterling merit.

Howard's strain of lilliput zinnias are indeed little darlings. I cannot praise them too highly. After two years trial I find them indispensable. Of the dianthus or Chinese pinks The Bride, Crimson Belle and Eastern Queen have been very large, fine and attractive. They are all single and very choice. Of the same kind is the Cyclops pinks which have the additional recommendation of having the delicate clove fragrance of the carnation, which none of the other China pinks have and which makes the Cyclops quite indispensable.

Geneva, N. Y. Aug. 29, 1894. GEO. S. COXOVER.

HARDY CYCLAMENS.

E. R., Plainfield, N. J., asks: Are any of the hardy cyclamens of the European catalogues hardy and desirable in the vicinity of New York?

Yes, under special conditions. Some kinds as *Coum* and *Atkinsi* bloom in winter and early spring, *vernum* and *Ibiricum* in spring, and *Europæum*, and *hederæfolium* from late summer during fall. All have tuberous rootstocks, and these should be planted underground, not half above ground, as we grow the Persian cyclamen. All love well drained but moderately moist ground, well mixed with vegetable mould or old leaf soil, and they must have protection from warm sunshine and sweeping winds. They are not fitted for cultivation in the open border. The east or southeast face of a gentle sloping rockery is a good place for them providing they also have slight shade. In a cold frame against the north facing wall of a building suits them firstrate, in fact in such a place they would make admirable companions for Christmas roses. Although they are generally considered as being perfectly hardy and we have had several of them live and thrive year after year, in the rockery at Cambridge, near Boston, they should have protection in winter; this can be given in the way of a favored warm nook in the rockery, a few—not many—dry oak leaves, and some fresh spruce or fir branches. But if you wish to enjoy them to their fullest extent and get the good of their flowers, grow them in shaded cold frames. The ivy leaved (*hederæfolium*) and European (*Europæum*) have delightfully fragrant blossoms.

AGERATUMS, BLUE AND WHITE.—E. R., Plainfield, N. J., asks: What is the brightest blue, dwarf ageratum, and which is the best of the dwarf white ones?

Mr. F. Kanst, of South Park, Chicago, replies: The bluest ageratum, although not very dwarf, is called Cope's Fet. It grows to about one foot high. I can not say anything about dwarf white ageratum I do not use any as I could never find any white enough to suit me

The Greenhouse.

THE GREENHOUSE.

See that everything is tight and snug about the glazing on the roof and sides, that the benches are solid and strong, that the heating apparatus is in perfect running order, and all is in good enough

BROCKWORTH PARK PEAR.

condition to brave the winter. All repairs and alterations should be made before the plants indoors are rearranged and those that were summering outside are brought in. It is much easier to do this now than later on when the houses are more crowded with plants.

The plants, too, should be clean, and in good condition as regards their roots in the pots, there should be no worms in the earth and the pots should be well drained.

Rearrange the greenhouses. In the summer time the most tropical plants were at home in any of the greenhouses, but now they must be returned to their warmer quarters, the home of crotons, marantas, ixora, and the like. In temperate quarters, that is in the compartments having a minimum winter temperature of about 50° most anything will grow. Plants kept for fine foliage only as dracænas, crotons, palms, and ferns, do not need sunshine in winter, the sunniest places should be reserved for plants that bear showy blossoms.

Get the poinsettias indoors at once, cold nights and heavy rains will yellow their leaves and rot their roots.

All begonias such as *rubra, manicata, insignis, fuchsioides*, and other permanent evergreen sorts should also be brought indoors, but annual sorts like Vernon, and deciduous kinds like the tuberous-rooted begonias and *Evansiana* may be left out till frost kills their tops. Some of the stockiest tuberous begonias if lifted and potted and brought into the house or greenhouse will make handsome blooming plants till November, and if you want any seed from them the best way to get it is from plants lifted and potted in this way, for they don't ripen many seeds out of doors. Vernon, on the other hand matures an abundance of seed, planted out.

Cacti if left out longer are apt to rust, and it is incurable. Keep them dry overhead.

Most of the commercial florists have their carnations all housed, they plant them out on benches. We grow six hundred plants in pots, they are now up and potted, and plunged to half their depth in beds in the frame ground, where they root nicely. It doesn't do to plunge potted plants to their brim outside now, for any flooding from rain is sure to rot the roots.

Paris daisies, berried solanums, stevia, eupatorium, genista, callas, freesias, chrysanthemums, and the like that are growing in pots, in beds in the frame ground are all washed and ready at a moment's notice, in the event of the appearance of frost, to take indoors. Here we seldom get frost before October. While a slight frost does not apparently hurt azaleas, freesias, carnations, obconica primroses, and some others, it doesn't do them any good, and it is far better to be on the safe side and protect our plants. In order to retard the blooming of azaleas, genistas, and stevias as much as possible we store a lot of them in cold pits, the azaleas keep well there all winter, but we have got to watch the others very closely and pile lots of covering over them in winter to keep out frost, for it will destroy them.

Put in a lot of cuttings, if you haven't done so before now, of "Lady Washington," or show pelargoniums. As soon as they are rooted and potted off you can afford to throw away the old roots and thus economize room.

Pot or box up a succession of hyacinths, tulips, narcissus, freesias, ixias, and the like.

Encourage your cyclamen to grow, also Chinese primroses, cineerarias and calceolarias. They like a cool house, a place near the glass, and a faint shading.

WINTERING CHRYSANTHEMUMS.—M. E. M., Malone, N. Y., asks: After chrysanthemums are done blooming in the house what sort of care do they need to preserve them through the winter? Should they be watered?

Cut them down close to the pot. Place them where they can be kept quite cool through the winter, say in a cellar, pit or frame. The earth must be kept somewhat moist at all times, but this is an easy matter when the plants are cool and at rest. Or you may turn the plants out of the pots and pack them tightly together, heads up in a box, as an old soap box, when they will be easier to keep moist in winter, still keeping them in the cellar or pit. If the frost is likely to get at them cover them with some old matting, carpet, hay or leaves. A little frost will do the roots no harm, but if they are in pots frost may burst the pots. They will winter very well in a dull sunless window of a cool room, if you don't need the place for anything else. At Dosoris we grow a lot of chrysanthemums in 5 and 6-inch pots, also planted out here and there, and when they are done blooming we cut them down, tying the names to the stumps, then turn those in pots out of their pots, and plant all close together in a cold frame there to remain till spring. The frame is well banked around with earth, and sashes put on and some sedge over the glass to help keep hard frost out. We ventilate only a little in fine weather, till towards spring, when we do away with the covering, except the sashes, altogether. In early spring we get fine fat cuttings from this frame, or we can lift, divide, and replant the old plants, and in this way get a fine stock of plants for the next season.

The Fruit Garden.

PEAR BROCKWORTH PARK.

Although this is an uncommon pear in American gardens, it is one we might plant more of with profit. It grows and fruits very well at Dosoris, in fact it never misses a crop with us. The fruit is large, oblong, obtuse pyriform; the skin is pale yellow with greenish or russety specks on it, and occasionally a faintly blush cheek. The flesh is white, melting, buttery, and juicy, at the same time hardly of superior quality. The trees are very prolific, and the pears of uniformly good size, and if we thin them early, they become quite large. They ripen about the end of August and first of September, immediately after the Bartletts, and at the same time as Boussock and Seckel. It thrives well as a dwarf tree. Our illustration is engraved from a photograph of some of these pears grown at Dosoris.

RASPBERRY, BLACKBERRY, AND CURRANT BUSHES.

New plants of the black raspberry are started this month by covering the tips with moist soil, two or three inches deep and allowing them to remain until spring.

Plants from the currant and gooseberry may now be made by selecting strong, new growth, cutting in pieces six or eight inches long, and setting at once in moist, rich soil, leaving one or two buds above the ground. Cuttings may also be buried in sand, away from frost, and set in early spring.

For the northwest, the true Ancient Briton black berry stands without a rival. In black caps the Ohio, Palmer, Progress and Older for early, and Nemeha and Gregg for late. Shaffer's Colossal (purple) for quality and productiveness is unexcelled, for family use. Marlboro and Cuthbert for reds are the best well tested varieties. The "London," a grand berry, promises to supersede all others.

The value of a berry often depends on location and cultivation. As poor berries improve with high culture, so good deteriorate with neglect. The best berries are produced only by the best culture.

Sparta, Wis. M. A. THAYER.

GARDENING

WILLIAM FALCONER, Editor.

PUBLISHED THE 1ST AND 15TH OF EACH MONTH

— BY —

THE GARDENING COMPANY,

Monon Building, CHICAGO.

Subscription Price $2.00 a Year 24 Numbers. Advertising rates on application.

Entered at Chicago postoffice as second-class matter.

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All communications relating to subscriptions, advertisements and other business matters should be addressed to The Gardening Company, Monon Building, Chicago, and all matters pertaining to the editorial department of the paper should be addressed to the Editor of GARDENING, Glen Cove, N. Y.

GARDENING is gotten up for its readers and in their interest, and it behooves you one and all to make it interesting. If it does not exactly suit your case, please write and tell us what you want. It is our desire to help you.

ASK ANY QUESTIONS you please about plants, flowers, fruits, vegetables or other practical gardening matters. We will take pleasure in answering them.

SEND US NOTES of your experience in gardening in any line; tell us of your successes that others may be enlightened and encouraged, and of your failures, perhaps we can help you.

SEND US PHOTOGRAPHS OR SKETCHES of your flowers, gardens, greenhouses, fruits, vegetables, or horticultural appliances that we may have them engraved for GARDENING.

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LUCULIA GRATISSIMA and *Acacia pubescens*. If anyone has got plants of these to sell, will they please advise us.

BEGONIAS OUT OF DOORS.—The extremely dry weather of this summer has been very adverse to the well being of tuberous begonias, and it is only by the closest attention to mulching and watering they have been kept in good condition. But the *Begonia Vernon* is doing well everywhere. It is a stocky grower, easily raised from seed, and stands our open summer weather first rate. There are plain green, bronze green, crimson tinged, and yellow leaved varieties of it, and with blossoms varying from white to crimson. And we observe in some pretentious cases where tuberous begonias were planted early in the summer, they are now removed and their places filled with this Vernon begonia.

A DOUBLE FLOWERED EGYPTIAN LOTUS.—Among Mr. Tricker's pond lily exhibit at Atlantic City last month we noticed a double flower of Nelumbium speciosum. Its inner petals were much crowded and there were about a hundred of them.

HYDRANGEA PANICULATA GRANDIFLORA may be regarded as the most indispensable shrub in our gardens. It is hardy over a large extent of country, and easy to grow and sure to bloom, and it blossoms in August and September, when trees or shrubs in flower are very scarce.

ALL-SUMMER-LONG FLOWERS.—For an unbroken supply of flowers all summer long few things are better than petunias, verbenas, Drummond phlox, gaillardias, geraniums, heliotrope, sweet alyssum, torenia, Vernon begonia, *Plumbago capensis*, vinca, globe amaranth, and cannas.

THE VARIEGATED JAPANESE HOP VINE is a perfect gem, the more we see of it the better we like it. Of course people who are averse to variegated plants will have no use for it because it is variegated. Our plants are now in bloom and the mist of gray blossoms against the pillar of distinctly white and green foliage is very beautiful.

THE ONE THOUSAND FLOWER SUN FLOWER is a very tall growing annual with medium sized showy flowers, yellow with dark center, and although it branches considerably it is more branchy near the top than near the bottom, hence becomes top heavy. Only in a sheltered place will it stand alone without danger of breaking down by the weight of its own top, let alone a wind and rain storm.

HYPERICUM MOSERIANUM is giving great satisfaction where it has been tried, blooming almost perpetually, and it grows well. Mr. Harper of Andorra, Philadelphia, tells us it is perfectly hardy in their grounds. From our own experience we cannot tell how hardy it is here as we haven't given it a fair test. The coming winter, however, we will have plants enough to be able to spare a few to the mercy of the weather.

THE SNOWBERRY BUSH (*Symphoricarpus racemosus*).—Among the many ornamental berried bushes in ripe fruit in our gardens none is more distinct and striking or more heavily laden than this old-fashioned shrub. Although it will grow in sterile ground, if you would see it in all its glory, plant it in good soil. Mr. Temple tells us he uses it for planting on the face of steep embankments to bind the banks, and he knows of no plant that does this work any better.

THE SWAMP ROSE MALLOW (*Hibiscus moscheutos*). How beautiful this is now in the New Jersey meadows, bordering the ditches, even the brackish waters. Its large rosy flowers are very numerous and showy; some of them have a crimson eye, but most of them have not, and many of them are white instead of rose flowered, and white with a crimson eye. Although the plants are herbaceous perennials they have the general appearance of shrubs. They make fine garden plants and grow as well inland and far West as they do by the Atlantic seaside, providing the land is somewhat moist.

THE EFFECT OF GROWING POND LILIES. One of our readers writes: "Just to show you how these things go, since I started my ponds no less than six of my friends, have built good sized ponds and have been delighted with their success. I feel satisfied that if the subject of aquatics was properly kept before the people oftener many of them would avail themselves of the charms of a water garden. While I suppose we are all more or less inclined to be lazy, here is something that as a lady friend of mine said requires neither watering or weeding."

ELMS.—So destructive is the elm leaf beetle in the eastern states that most people have stopped planting these trees, and landscape gardeners do not include them in their lists. There is no visible lessening in the ravages of the pest, and rather than submit to the whole summerlong disfigurement of their home grounds, many people are rooting out their old elm trees. We are doing so at Dosoris. Is there no remedy? No, not a complete one. We have sprayed earnestly and continuously, with Paris green, 1lb to 200 gallons of water, but we cannot reach the tall trees, besides, this Paris green business around our homes where young children are at play and pet animals are at liberty is neither safe nor comfortable.

HOTBED SASHES.—At Floral Park the other day we found Mr. C. H. Allen, the gladiolus and carnation specialist, getting in a lot of 3x6 hotbed sashes, that is he was getting the wooden frames from the factory (one of the builders advertising cypress woodwork in GARDENING) and he was to glaze them himself. The frames are made of clear cypress, and for any size of glass to suit. Use double thick American glass, and in glazing, bed it in putty, also run putty on upper side as well. Amateurs who prefer to get their sashes all ready glazed may also have them done in this way, and either from the dealers in greenhouse materials or from most any sash and blind factory in any town or city.

BERRIED PLANTS.—Mr. J. T. Temple the nurseryman of Davenport, Iowa, is a crank on this subject, especially as regards hardy plants. At Dosoris the other day when he saw *Crataegus Lalandii* with its load of orange berries he sighed, for the plant isn't hardy in Iowa. But when he beheld the little *Rosa nitida*, a thicket of scarlet fruit, and the limbs of the beach plum bending under their load of purple plums, and the long vines of *Asparagus verticillatus* garlands of orange berries he concluded his journey was not in vain, and he had found desiderata enough to pay him for his trip. He looked wistfully upon the red drooping strawberry like fruits of *Cornus Kousa* (*Benthamia Japonica*) but concluded the plant wouldn't survive in his state.

SOAP SUDS.—Don't use soap suds on your pot plants, tub plants, or set out plants around your house! Well we know that this advice is in direct opposition to stereotyped garden doctrine, but we can not help it. We will not do it ourselves nor allow it to be done about our doors, we believe in neatness, cleanness, and sweetness. The pestiferous, malodorous, and unsightly incrustation left in the ground by the use of soap suds about the house is disgusting. And it is unnecessary, for the manurial element (the excuse for using the suds) contained in the soap suds is insignificant. If the soil is poor we can enrich it from the manure yard at the proper time, and clean water will cheer the plants as heartily as soap suds. Results tell. Try enriched ground and clean water.

STURTEVANT'S GOOSE FLOWER is the name given in Chicago to *Aristolochia gigas* var. *Sturtevantii*, a rare and ex-

ceedingly odd-looking flower now in bloom in the Washington Park conservatories there. The plant belongs to the same genus as does the common hardy Dutchman's pipe vine, but the blossoms are of enormous proportions and fantastic form, looking like some large bird, and each bloom has a drooping narrow tail some two feet long. The plant was in bloom in one of the greenhouses at the World's Fair last year, and is in flower in several places throughout the country this summer. It is a native of the tropics, and thrives in a pot or tub or planted out in a roomy greenhouse. Better still, have a large plant well established in a pot or tub in spring, and plant it out of doors in a warm, sheltered, but sunny place in June; train it to a trellis, and give its roots good soil, and abundant waterings in summer. Not only does this one do well under these conditions, but so too do all of the other tropical species that we know.

VERBENA AUBLETIA is an American hardy plant with showy purple flowers, and it isn't uncommon in cultivation. An English contemporary having read in an American paper that "Verbenas of recent years * * probably from overfeeding and propagation have been so much diseased that the florists have largely discarded them." And advises us to get an infusion of *Aubletia* blood into them. Bless you, no. Our verbenas are all right. In fact, notwithstanding the severe drouth we are now suffering from there are fields of verbenas in bloom on Long Island and in Monroe Co., N. Y., that would turn a European's hair gray with envy. The real fact of the matter is, we get verbenas so good and so easily from seed, and too in such variety that we can't be bothered perpetuating them from cuttings with all the winter room and labor that entails. There are lots of other things in the same way, for instance, hollyhocks, tuberous begonias, cinerarias, pentstemons and the like. We have no time to fuss with named varieties and preserving them from cuttings when we can get such good results from seed. Make gardening easy if you wish to make it popular.

The Vegetable Garden.

THE VEGETABLE GARDEN.

Our extremely severe long-protracted drouth is broken; it lasted up till the 8th of this month, when we had a generous rain, so now we can go ahead and do some work. Read over what was written for last (September 1) issue, most of it is applicable yet.

The first thing we did after the rain came was to run prong hoes and long-toothed iron rakes between the rows of the young crops to unfasten the surface of the soil about them, and encourage them to grow. This was done particularly in the case of young beets, carrots and turnips, which, if the weather from now on isn't favorable, are apt to be behind.

We had some dwarf curled kale and Snowball cauliflower more than ready for planting when the rain came, so we set it out at once, in land emptied of potatoes. The kale if only half grown when winter sets in will be big enough for use, and as regards the cauliflower, if it will be behind we can lift and store it in a frame or pit about the first of November, it will head all right before Christmas.

We are now getting ground ready for sowing German kale in for sprouts in spring. Sow it thinly in rows 15 inches apart as you would spinach. Never before did our Brussels sprouts look so bad at this time of year as they do now, on account of the dry parching weather, another emphasis that early sowing and early planting is better in the case of this vegetable than delaying it till the time of sowing fall or winter cabbage. If they don't set to making sprouts pretty soon nip the tip ends out of them, this will cause them to shoot out on the sides.

Of spinach, get in a large sowing at once and in good ground. We like to sow it in rows 12 to 15 inches apart, on land facing the south, and where water won't lie on it in winter. We are very much troubled at this time of the year by the spinach leaf miner; you will observe its presence in the leaves by the white spots or blisters on them. We know of no practicable remedy.

Lettuces are in good form now. Make quite a large sowing of Improved Boston Market, or some other hard headed sorts for frame use. We sow in the open ground, and plant into frames later on. To get good lettuces use very rich ground.

Celery will need a good deal of attention, go over it all and pluck away the rusty leaves, then unfasten the earth on each side of the rows with a fork, and draw it up to the roots of the plants packing it firmly about the same with the hands or "handling" it as we say. But this is earth enough. Remember that the cleanest and best celery is obtained by bleaching it between boards. Ordinary boards are laid along the rows and set up on their edges close against the plants, and the earth drawn up against the outside of the boards to keep them in place but not so as to touch the celery. Paper collars and all other methods of blanching celery as compared with common boards we have found to be clumsy and tedious, and greatly more laborious.

If your tomato plants are on the ground cut them in a little and set a frame over them covering it with sashes. This is to keep the tomatoes dry both overhead and at the root, and get them to keep less watery than they would if left uncovered, also ripen up better. Also cover up some cucumber plants in the same way to keep them healthy and in good bearing for a long time to come.

Sow some Telegraph cucumbers for use in winter. Cool and Crisp, and other of our short cucumbers are hardly fitted for greenhouse or hot bed work, because they are short lived, on the other hand the Telegraph will live and grow and bear cucumbers all winter long if the conditions for such are favorable.

GOOD POTATOES.

My soils is a black prarie loam. I believe it is a rule, with some exceptions of course, that a potato that will do well in one soil will do comparatively well on all soil. If it does not, it is likely to prove uncertain on any soil and is unworthy of confidence. I would name two varieties for early: Early Market (Ohio style) and Signal, (Hebron style). For medium and late the best we have are World's Fair and Rural New Yorker, the latter for yield and the former for quality.

Clinton, Wisconsin. L. L. OLDS.

THE JAPANESE CLIMBING CUCUMBER.—C. E. A. asks if it is fit to eat. Yes, its cucumbers are perfectly good to eat, but in our opinion they are not of as good quality as are Cool and Crisp, Improved White Spine, and other of our old sorts.

Mushrooms.

MUSHROOMS.

Attend to the manure as recommended page 411. Be very particular about it not getting over wet, also about its "burning," either evil is almost fatal to the crop. If the manure is too wet, that is so moist that you can squeeze wet out of it, in making it up it is apt to form a sodden, solid mass, and the spawn will die in it. "Burning" is another fungus growth, and mushroom spawn won't run in it, it will die rather. In the proper preparation of the manure lies the chief secret of success in mushroom growing. In well prepared manure, even common quality spawn run and produce a crop of mushrooms, but poorly prepared manure is repugnant to the mushroom plant and the best of spawn will die in it. In turning the hot manure don't be distressed because a cloud of steam (ammonia) arises and escapes, don't fret because you are losing so much valuable mushroom food; the least burning or over-wetting will do the manure more harm in the eyes of the mushrooms than the escape of all the steam the manure can generate. We save the ammonia partly in this way. When we turn the manure we spread it out a little to cool, then heap it together again, and then throw a light coating of fresh loam over it. At the next turning this coating is mixed with the manure; we spread out the manure to cool as before, then heap it together, and coat it with loam as before; and so on. This gives us a fine mixture, the loam being loaded with ammonia, and it also helps to reduce the tendency to violent heating.

When the manure is rotted enough and when there is still fair heat in it, make up the beds on the floor of a shed, barn, cellar, or other convenient place, about eight or ten inches thick, shaking the manure on lightly so as to unravel it perfectly, and tamp it down solidly as you keep filling it up. Then cover with some hay or straw to absorb the condensed moisture that otherwise would gather on the surface of the bed, wetting the manure and rendering it uncongenial to the spawn. We don't like to have the temperature of the bed rise over 125°, and we wait till it declines to 100° or less, preferably 90° before we spawn it. Get the spawn at the seed store (and I don't accept of it gratis unless you are assured that it has been imported this fall, don't take a cake of what was left over from last spring), break the cakes into pieces about two inches square, a little more or less, and insert these into the manure in the bed in rows, and about nine inches apart each way, and buried just enough to be covered by the manure. Make all nice and firm again, and replace the straw or hay covering for a week, then remove it, and cover the bed all over with a coating of loam about two inches thick. And over this again replace the hay or straw, to prevent the bed getting dry prematurely. A month or five weeks after that look out for mushrooms, and if you wish to remove the hay covering lest in moving it to get at the mushrooms it gets caught in their heads and roots them out. Mushrooms big enough to pick are seldom plucked before in six weeks' time from planting the spawn, and often it is seven or eight. A night temperature of 55° to 60°, with as little rise in the day time as possible, seems to suit mushrooms better than any other

MUSHROOMS IN FLORIDA.

I. W. B., Volusia Co., Fla., asks:

1. Please tell me whether or not the mushrooms (when ready to eat) would bear transportation by express to the north if grown in Florida during the winter months?

2. Can they be packed so as to arrive in shapely condition for market?

3. Is the market a steady one?

4. Would it be a paying business to can them, if they would not bear transportation? I shall wish a copy of your book later on, probably, if I can receive sufficient reason to believe there is any money in growing them, but I have no surplus cash to invest in anything that is not sure of a reasonable market for the outlay. Any information would be most acceptable.

---

1. As now packed and shipped we should say no.

2. To a market within a day's journey, yes, perfectly; to a market of two days' or over journey, doubtful.

3. For good mushrooms at a reasonable price, it is. But it is with mushrooms as it is with forced fruit, flowers or vegetables, in order to be able to cut any figure in the market you must be in a position to furnish a continuous supply of good quality. Dribbles are not satisfactory.

4. That depends upon three things, namely, quantity, quality of mushrooms and canning, and how cheaply they can be put up. They are being canned in California.

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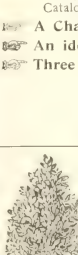

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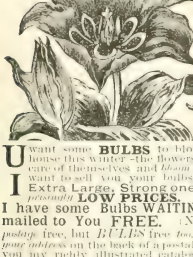

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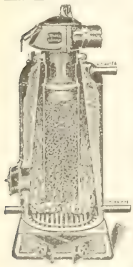

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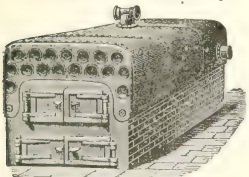

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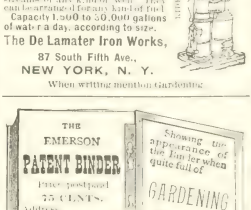

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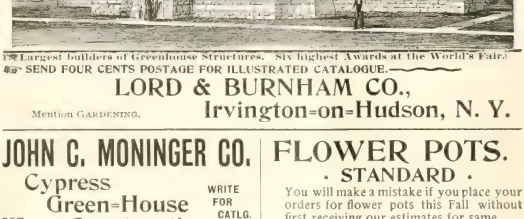

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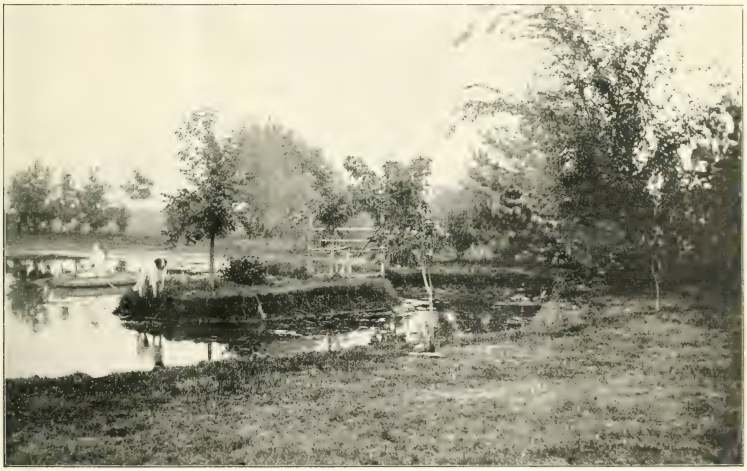

MRS M G. BAKER'S GARDEN POND PINEWOOD IOWA

Aquatics.

A LITTLE POND IN IOWA.

In a former article I spoke of the formation of a small pond on our place. It is filled from an artesian well and is quite picturesque, as well as valuable in dry seasons. The flow from the well was thirty-six gallons a minute wh n first bored. It has varied little since, but during this dry summer the water has evaporated wonderfully. We have had to use the water constantly for the yard and garden. This use and the evaporation have reduced the pond from five to three feet in its greatest depth. But this has never happened before. The water is impregnated with iron that discolors objects near the flow. The bottom of the pond is black mud. I think the iron in the water assists in decomposing rapidly the leaves and all trash that blows into the pond, and helps to form the slimy black muck in the bottom.

White pond lilies do splendidly. I never saw larger blooms I have tried the pink and yellow. They lived two years and then were either winter-killed or eaten by the musk rats. That little pest has made us quite a bit of trouble; sometimes eating the roots of the white lilies and sometimes killing the fish.

A few years ago a nurseryman sent me a plant that is making us a great deal of trouble. If not disturbed I believe that in two years it would take the pond. I have forgotten the name. It has a single yellow flower the size of a silver dollar, the edges of the six petals slightly fringed. The leaf is shaped and grows on the water like the water lily leaf, from one to three inches in diameter, the edges repand and the old leaves spotted. It is rather pretty but a nuisance and should never be sent out. The musk-rats don't care for it.

The banks of the small island and half the pond are perpendicular. On the other half of the pond the bank is gently sloping. Clover grows everywhere to the water's edge. In the coldest weather the water freezes from twelve to fifteen inches. There is a large space, where the water enters the pond between the island and the west bank that never freezes. The temperature of the water at the well is 50°. The main supply of water is carried to the pond by an underground pipe. At the same place it receives a flow from a rubber hose connected with the well. This gives more water and is handy in watering the yard. We shall be glad to have you give us your ideas about planting the pond and name the kinds of aquatic plants we could use.

So far the drouth has not affected our trees or shrubs. Weir's cut leaved maple, the birches, catalpas, wild olives, European and American mountain ash, blue spruce, golden arbor-vitæ, blue fir, white pine, and all common pines stand our climate without killing back. Our winters are quite severe. Sometimes during the season the thermometer is 25° below zero. But with us the spring does the most damage; the days of hot sunshine and freezing weather alternating.

Russian tamarix, *Syringa Japonica*,

Exochorda grandiflora, *Spiræa Van Houttei*, variegated elder, *Prunus triloba*, flowering almond, American snowballs, lilacs, purple fringe—this is covered with its quaint purple flowers every summer—and *Hydrangea grandiflora* never winter kill with us, and most of them bloom freely. Hydrangea never winter kills, even the tips, and never fails to give abundance of bloom. I have two large clumps that I trim every spring closely. Now they are five feet high and covered with lovely heads of cream white blooms. On one there were this season over a hundred perfect bunches of blossoms. Coming so late when flowers are not so plentiful I do not see why they are not more commonly cultivated. Push a stout slip in the ground and if enough moisture is given it, it will root as easily as a currant.

Japan quince, rose weigelia and calycanthus winter kill. But I am trying your method of covering with boxes filled with leaves and hope to have better success after this.

The barberries and yellow flowering currant, and Tartarian honeysuckle are as hardy as oaks.

We have not a great variety of vines, that I have succeeded in growing, they include wistaria, Jackman's clematis, honeysuckle, Prairie Queen and one multiflora rose. We can grow the old Belgian honeysuckle by laying it down and covering it thickly in winter. Its fragrant flowers pay for all trouble. Another year I shall try *Clematis paniculata*. We generally have in the second week in September a frost that injures flowers. Pæonias are very hardy and free bloomers. Do pæonias mix? [They do not. But the herbaceous varieties behave very strangely both as regards their colors and doubling (see Ed. note, page 362, July 15). The Chinese or late flowering herbaceous sorts are the most inconstant. Why, we have had seedlings bloom well for a year or two giving single or semi-double flowers, and the third season have full double blossoms.—Ed.] I have the loveliest single red pæonia. The first year it bloomed it was perfect. Its great mass of long yellow stamens and glowing red petals made it a gorgeous flower. The next year it was nearly double, the long stamens nearly covered and the color an ugly red.

Several years ago I tried garden anemones but they winter killed. Had I covered them as you advised I would have saved them perhaps. I am trying two clumps of Vick's whirlwind anemone received this spring. And waiting anxiously to see how they bloom and endure our winters. MRS. M. G. BAKER.

Pinewood, Iowa.

This very pretty piece of water seems well adapted to the cultivation of aquatic plants; as the common water lilies grow so well it shows that the soil is in good condition for all other hardy varieties, and no special preparation is necessary. Lists of the best varieties with instructions about planting have been given in recent numbers of GARDENING. (See pages 295, 393 and 405.) The tender varieties of *Nymphæas* would also do well in this pond. The best of them are *N. Zanzibarensis* and its varieties *azurea* and *rosea*, *scutifolia*, *dentata*, *gracilis*, *stellata* and *Devonensis*. These would do fairly well planted in the soil of the pond in water not more than a foot or fifteen inches deep, but they would do better planted in boxes three or four feet square and a foot deep, filled with a compost made of equal parts of old thoroughly decayed barn manure and garden soil. They should be sunk deep enough to cover the crowns of the plants with twelve to eighteen inches of water, and not more than eight or ten feet of each other if there is plenty of room. The hardy nymphæas should be planted in irregular patches near the margin of the pond in the bayou and nooks or wherever it seems most appropriate, leaving plenty of open water in the middle and in places on the margin for boating. Plant some *Nelumbiums* in the space between the little island and the main land. The hardiest and best variety is the deep pink *N. speciosum roseum*. The pure white variety *album grandiflorum* and the yellow native American species *luteum* are also good. A few roots of these will soon spread over considerable space and all the care they need will be to keep them within bounds by removing the runners after they have spread as much as desired.

Build a rustic bridge from the main land to the little island, remove the tree on this and build a small round or octagonal rustic summer house on it, to be covered with *Ipomœa setosa*, *I. grandiflora* or some other rapid growing vines. Grade down the banks of the island enough to make a gentle slope to the edge of the water and plant some caladiums, cannas and Egyptian paper plants (*Papyrus antiquorum*). The latter is one of the finest plants I know of for a water garden and flourishes equally well in shallow water and on dry ground. Plant some of the tender *Nymphæas* on the water side of the island, and around the edge of the pond in appropriate places in the shallow water plant *Papyrus*, the variegated sweet flag (*Acorus Japonica variegatus*), *Scirpus zebrina*, *Sagittaria Japonica fl. pl.*, *Pontederia cordata*, *Limnanthemum Indicum* the water poppy, the common water hyacinth and the blue species, *E. azurea*. No more suitable place can be found for the cultivation of the magnificent Japanese and other irises than the margin of a water garden. On the lawn in suitable places around the pond plant beds of semi-tropical and other ornamental plants such as musas, canna, caladiums, castor beans, *Arundo donax*, *Eulalia gracillima univittata*, *E. Japonica variegata* and *E. Jap. zebrina*, *Erianthus Ravenne*, etc.

The plant referred to as such a nuisance is probably the European *Limnanthemum nymphæoides* and ought never to be planted in a pond, as it is impossible to get rid of it when once established. I have had no trouble with musk rats myself, but they are very partial to the root of *Nymphæas* and nelumbiums and a few of them will do a great amount of mischief in the course of a winter. The only way I know of to get rid of them is to trap or shoot them, and if there are no other ponds or streams in the vicinity it ought not to be a difficult matter to exterminate them. Perhaps a bounty offered to the boys of the neighborhood for every rat killed might help matters a good deal. L. W. GOODELL.

Pansy Park, Mass.

Trees and Shrubs.

PLANTING EVERGREEN TREES AND SHRUBS IN FALL.

Now is a capital time to plant evergreen coniferous trees, also rhododendrons, kalmias, andromedas, amœna azaleas, tree box, hardy heaths, and other plants of the kind that keep good balls of earth with lots of fibres to their roots. They should be well soaked before they are put into the holes, and before finishing filling in the dirt about them give a reasonably good watering. Do not water on the surface of the ground as it crusts the earth, and prevents a free penetration of rain and air. Don't plant coniferous trees as pines, firs, spruces, or arbor vitæ more than one or two inches deeper than they were before; of course the size of the plant has a good deal to do with this, big trees can bear a little more depth than small ones.

Don't overwater conifers. Thousands of young plants are killed every year by constant watering, it rots the roots and death ensues. Rhododendrons, azaleas, and the like can stand more water than conifers, and it is very important in their case to have the ball of roots thoroughly soaked before being planted. For the winter mulch about the plants with leaves or long manure, we generally use salt meadow hay, but do not apply it till the ground is frozen about the plants. The great advantage of planting now is that the hot weather is practically past, the nights are long and cool, there is a dew to recuperate the plants from the fatigue of the day, and the ground is warm enough to induce good root action. The result is that next spring the plants are apt to start off into growth more as if they had been established than recently planted specimens. J. R. TRUMPY.

Kissena, L. I., September 10.

PRUNING LILACS.

Please state the better time and manner of pruning lilacs? I planted some choice young bushes a year ago, but neither in my horticultural books or papers do I find directions for pruning, and I have the impression that it must be done with care. J. J. D.

Dutchess Co., N. Y.

The first thing to do is to make the lilac into a shapely shrub, and this may have to be done at a considerable sacrifice of good wood, even flowering wood, but no matter, begin aright. This may be done any time between October and the end of April. In pruning, cut out the old gnarled wood, and retain the clean barked, healthy shoots, but cut anything, big or little, back hard enough to give the plant a shapely foundation. Now, attend to the young wood. About the end of May, when the young shoots are pretty well developed, and before the terminal eye plumps up solid, cut the longer ones back half way if need be to preserve the equilibrium of the bush, they will branch again; and remove root sprouts and stem sap shoots. Don't do any late summer pruning; whatever is done should be done early enough to give the young shoots an opportunity to ripen up thoroughly in summer. Pruning, however, may not induce early blooming, for common as the lilacs are, we have few shrubs more exasperating as regards their starting to bloom.

TRANSPLANTING DECIDUOUS TREES AND SHRUBS.

From the end of September and early in October, most fibrous rooted trees and shrubs can be transplanted with excellent success. In the line of trees I may mention maples in general, horse chestnuts in variety, catalpas, and poplars; and in the way of shrubs clethras, euonymus, deutzia, mock orange or syringa, forsythia, hibiscus, hydrangea, hypericum, spiræas, weigelia. But trees and shrubs that have long or naked roots or are growing late should be planted after the first black frost. In the way of trees I may mention

birch, sweet chestnut, oak, beech, hornbeam, hawthorn, flowering dogwood, laburnum and sweet gum; shrubs include such as bladder senna, Japanese quince, elæagnus, exochorda, Siberian pea tree and benthamia.

It is essential that the leaves should be off, if not naturally, they should be stripped or cut off by hand. If left in they soon wither and the bark shrivels, and in consequence the tree becomes much enervated. Before setting the trees in the holes the roots should be dipped into a mud puddle, and in planting water them in the holes as recommended above for evergreens. A winter mulching as recommended for the evergreens is also of much benefit to deciduous trees and shrubs.

Magnolias, tulip trees, deciduous cypress and some others should be planted in spring just as growth begins to start, say after the middle of April. Locality will determine the proper time. It will be well to shorten the branches of the trees and shrubs, after they start, to unload their too heavy heads.

TRANSPLANTING FRUIT TREES AND BUSHES IN FALL.—First plant currants, gooseberries, and raspberries, then apples, cherries and plums, pears come last. Of course all fruit trees can be planted in fall and if the work is done in season, they show a marked gain over those planted in spring.

As soon as the hot weather begins in spring or early summer, stir up the ground around the trees and keep it open and clean, and if practicable mulch about the trees with long manure or grass to prevent the ground drying too much. Should hot, dry weather set in it would be well to uncover immediately about the trees and give a good soaking of water, then cover over with dry soil and replace the mulch. J. R. TRUMPY.

Kissena, L. I., September 8.

AZALEAS—MAGNOLIA.

B. W., Terre Haute, Indiana, asks about *Azalea mollis* and *A. amœna*, and *Magnolia parviflora* and *M. Soulangeana*.

Azalea mollis is a large flowered deciduous shrub from China and now much esteemed in gardens here. It grows from two to six feet high, and blooms a little before the leaves come out, continuing till the leaves appear. The smallest plants bear flowers. In color the blossoms are yellow, almost white, flame, and intermediate shades. Like most of its family it likes a sheltered and not over sunny place, moderately moist soil and not retentive; manuring is unnecessary. *Azalea amœna* should grow well under the same circumstances, but as it is a smaller plant don't inter-plant it with *mollis*, rather use it as a border plant. We are not sure though that they, *amœna* in particular, are hardy with you, under favorable circumstances *mollis* probably is.

Magnolia parviflora likes good soil—not fatted with manure—that has been deeply unfastened, and a warm sheltered place, but not a hot sunny exposure.

SHRUBS IN BLOOM NOW ARE VERY FEW. A good many blossoms linger on *Hydrangea paniculata grandiflora*, and the late-blooming typical form is in good bloom. A few althæa blossoms still stick to the bushes. *Lespedeza Seiboldii* (*Desmodium penduliflorum*) and the white flowered *Japonicum* are in good bloom and quite conspicuous. Matrimony vine, common and Chinese, is in good bloom and fruiting too. The white flowered *Clerodendron trichotomum* and the red *C. Bungeanum* are in flower, the latter not at best yet. European tree ivy was in fine flower up till now; although the flower heads are yellowish green they are so many and prominent as to be quite attractive. A little south of here the crape myrtle is lingering in the garden, and abelia and leycesteria are still in bloom. But now is the season of ornamental fruit.

RHODODENDRON—CHINA PINKS.—G. J. P., Salt Lake City, Utah, asks:

1. What time would it be best to transplant a rhododendron?

2. Do China pinks from seed this fall do well wintered in a cold frame?

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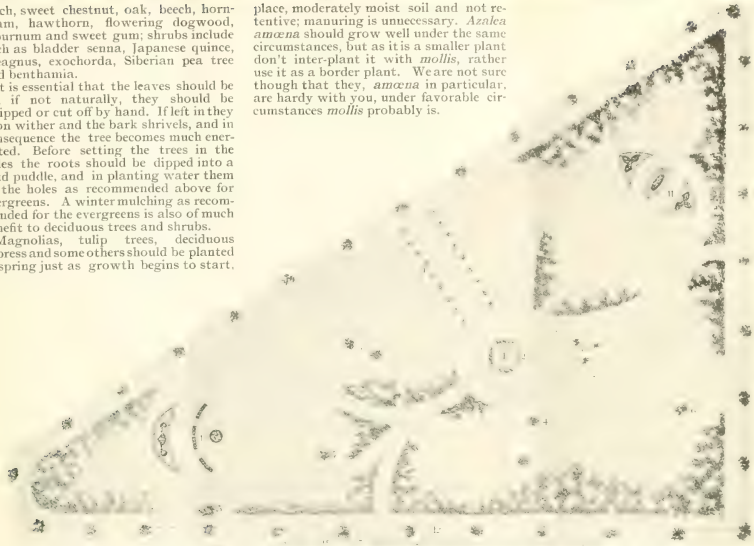
1. If you shelter it around with brush or boards you can transplant it at once; but it may be safer to wait till spring.

2. Yes, very well. Plant them thickly, and then transplant them outside in spring.



PLAN FOR A SMALL PARK

Landscape Gardening.

PLAN FOR A SMALL PARK.

In some cities and many small towns there are small pieces of waste ground which serve no better purpose than a depository for rubbish, which might be utilized for public gardens at a comparatively small expense. Such gardens would be a source of great pleasure to all and increase the desirableness of the surrounding property so as to prove a good investment when considered only from the practical standpoint of dollars and cents. Such small parks might be provided for by a general tax, by the subscriptions of the contiguous property owners or by the donation of some wealthy and liberal citizen as was done for the beautifying of the little park at Hazleton, Pa., the plan for which is shown with this article.

The site for this park was an irregular piece of ground on which the soldiers' monument stood and it occurred to Mr. A. S. Van Winckle that it might be made into a beautiful little garden instead of remaining barren waste, so he requested me to make a plan for its improvement. The plan which I made and which has since been very effectively carried out I think pretty well explains itself. By massing shrubs and small growing trees around the boundary the triangular shape of the ground is in a measure concealed and an appearance of spaciousness given to the garden. The walks make a place for strolling, give entrance from every

side, and furnish appropriate locations for flower beds which are usually and wrongly scattered promiscuously through the lawn.

In such a plan as this it is very important that the lines of the walk be made and kept true for if the corners are not true and the grass not kept sharply edged up the effect is very unpleasing.

Hazleton being in a mining country the fear was expressed that the park would suffer from the depredations of the rougher element, such is not the case however, the park has attracted the attention and admiration of all, but nothing has been damaged, not even a flower pulled.

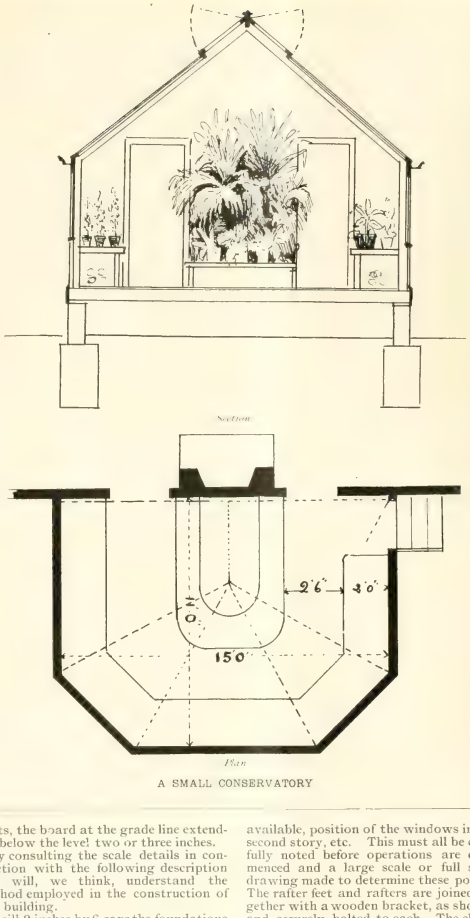
J. WILKINSON ELLIOTT.

Pittsburg, Pa.

EXPLANATION OF PLAN.

1. Monument.
2. Mountain laurel (*Kalmia latifolia*).
3. Japanese maples.
4. *Magnolia conspicua*.
5. Weeping Japanese cherry (*Prunus pendula*).
6. Weeping dogwood.
7. *Magnolia Soulangeana*.
8. Cut leaved birch.
9. Chinese arbor vitæ (*Biota Orientalis*).
10. Flower beds. The round one is filled with Japanese eulalia grasses, the three beds next the walk with geraniums, and the crescent shaped bed to be a ribboned or carpet bed. These beds can be changed annually if desired and planted every fall with tulips and hyacinths for spring flowering.
11. Flower beds. The center bed to be filled with Alphonse Bouvier and Madame Crozy cannas, and the end beds with coleus.
12. Fin oaks, sugar or silver maples.
13. Chinese cypress.

All the massed planting shown is of shrubs, a few evergreens, and some small growing trees such as dogwoods, red bud, white fringe, and birches planted at the back next the sidewalk. Large groups of *Hydrangea paniculata grandiflora* are set freely in the margins of the shrubbery next the lawns. This hydrangea when planted in masses in extremely rich soil and cut to the ground every spring is extremely effective and is a solid mass of splendid large flowers for a long season in the summer when few other shrubs are in blossom.



A SMALL CONSERVATORY

Greenhouse and Window.

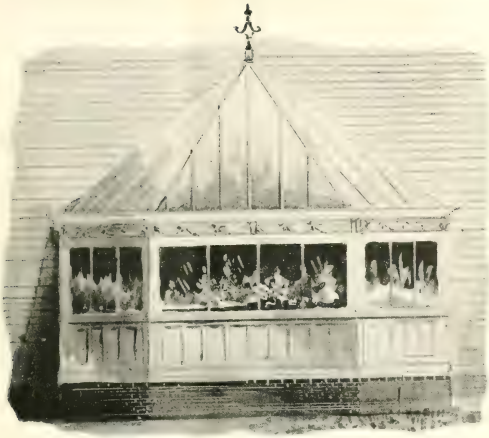
HOW TO BUILD A SMALL CONSERVATORY.

The drawings here presented show a small conservatory suitable to be attached to a private house. They are original and prepared expressly for GARDENING. The dining and drawing rooms of many houses are about 15 feet wide, have a chimney in the center with windows on either side of same. This conservatory erected in conjunction with either of these rooms would be an artistic and serviceable addition. The windows could be altered to doorways with or without doors as desired. A foundation built of the same material as that of the dwelling with stone footings carried below frost line should be prepared for the conservatory, or if this be too expensive, locust posts could be used instead. If posts are used the tops must be squared, and the proper angle given to those which form the corner of the octagon. German siding could be nailed to posts, the board at the grade line extending below the level two or three inches.

By consulting the scale details in conjunction with the following description you will, we think, understand the method employed in the construction of this building.

A sill 2 inches by 6 caps the foundations and should be laid in a thin bed of cement. Floor beams 2 by 10 inches secured to the sill and supported at the house on a 2x4 secured to dwelling, should be laid the 11 foot way of conservatory. A plate 2x4 inches is next fastened to the top of the floor beams, following the outlines of conservatory same as sill. To this plate the rafter feet are secured by cast iron lugs bolted to the plate and rafter feet. It will be noticed that this plate extends outside of the conservatory forming a cap for the base, and constructed in such a way that it is impossible for water to find its way into the joints. The height of the sides as well as the length of the rafters can only be determined by the room available, position of the windows in the second story, etc. This must all be carefully noted before operations are commenced and a large scale or full sized drawing made to determine these points. The rafter feet and rafters are joined together with a wooden bracket, as shown, and securely bolted to each. The elevations and dotted lines on plan show the number and position of the rafters. Where the rafters join at the ridge they should be secured to the same with iron straps.

The sides of the conservatory from the top of the floor to a height of 2 feet 6 inches are panels running between rafters and secured to the same. A sash sill caps the panels, and above this are the side sash $1\frac{3}{4}$ inches thick, hinged at the top to facia and provided with iron straps to open them. The facia, $1\frac{7}{8}$ inches thick, runs from rafter to rafter in one continuous piece. The rafter feet should be cut away where the facia strikes them so that the face of the rafter foot and facia are on the same plane. The gutter is constructed



Front Elevation

Side Elevation.

A SMALL CONSERVATORY

in two pieces lined with tin and supported by brackets as shown. Care must be taken that the tin laps over the outside face of the gutter and extends close to the facia cap, as otherwise water will surely find its way into the conservatory. The roof is formed by rafters and sash bars, the bars being gained into the facia cap and mitred against the rafters. The position of these can be readily seen on elevations.

Either side of the short ridge are small sash for ventilation hung to the ridge and are intended to open by means of ventilating machinery, which can be procured for a small sum, of dealers in the same.

The tables can be built of wood, they should be strong and substantial with a band on the front projecting about two inches above the table. The floor beams should be covered with a narrow spruce floor. A hard pine one should be laid on top of this with thick building paper between to keep out the cold.

White pine is the best wood to use in the construction of every part. Ground glass is the best to glaze the roof with, while clear double thick for the sides, or if the owner prefers plate could be used. An outside doorway is shown and this is necessary, as it saves the bringing of plants through the dwelling. The steps can be built of either wood or stone. Steam or hot water can be used to furnish heat, and can be run from the same system used to heat the dwelling. If hot water is used 9 lines of 4-inch cast iron pipe should be placed under the tables that extend around the outer sides of conservatory. If steam is used 15 lines of 1¼-inch should be placed in the same position as the other pipes.

All the woodwork is to be painted with three coats of pure white lead and linseed oil. All joints in the woodwork should be well filled with thick white paint.

New York. D. R. C.

AMARYLLIS—TENDER SHRUBS IN POTS.

1. I have an amaryllis which bloomed for the first time last March and was again in bloom about the middle of July. Is it common for amaryllis to bloom twice in one year? It has never rested but has made vigorous growth ever since it came into my possession. I do not know the name of it. It is of a dull or orange red, with white stripes and green at the base of the flower. The leaves are of a thick leathery texture but short in growth. It is constantly forming bulblets which I break off, and pot the most promising of them. Can you name it and advise me as to future treatment?

2. Kindly advise me as to best winter treatment of the following shrubs, which are in pots: Acacia, Cattleya's guava, crape myrtle, Cape jasmine and celestial or sugar fig. The latter is in a large tub and now has ripe figs on it. I have a country place with frost proof cellar, also furnace cellar and will build a small 10x12 greenhouse which I will try to heat with a coal oil stove. It will be well protected from the north and west winds and get the full benefit of the southern sun.

St. Louis. J. T. H.

1. From a description we can not name the amaryllis, there are so many kinds of them. Should we suggest a name it would only be guesswork, which is often erroneous and very misleading. Better send us a leaf and a flower. Some kinds of amaryllis are of an evergreen nature, and others which are really deciduous can be made evergreen by treatment, but it is improper treatment. We often have *aulica* bloom in spring and again in summer, the same with *Johnsoni* (which your description suggests), but the hippeastrum hybrids are not apt to do this. In a general way as regards the cultivation of amaryllis we may say: The plants bloom in late winter and spring, according to treatment, as soon as they have done blooming we repot them; about the end of May we plunge them in a bed out of doors with a thin lath shading over them, and encourage them to grow as much as possible; towards fall we begin to keep them somewhat dry till by the middle of October or first of November they are kept quite dry, then we lay the pots on their sides out of the way where they will be perfectly dry and in a temperature of say 50°, and let them stay there till they show signs of renewed growth or flowers say about the first of February. We then lift out a few at a

time, and water them sparingly to begin with, and they soon rush into bloom. In the case of evergreen species, instead of keeping them dust dry in winter we simply keep them moist enough to prevent the foliage from withering, and in a temperature of 45° to 50°. Amaryllises are very easily grown in this simple routine way.

2. Most acacias bloom in February or March; if yours belongs to this set keep it at the cool end of your greenhouse, if you haven't room there keep it in the frost proof cellar and near the light till it shows flower, then bring it upstairs to the window. Treat the Cape jasmine in the same way. The guava may be kept in the cellar all winter, where it can get light. Keep the crape myrtle in the cellar, also the fig tree. As both of these are deciduous, and will bear a few degrees of frost with impunity, they will keep well enough in a dark place, and the cooler it is, providing hard frost is excluded, the better. In storing any of these in the cellar be very careful never to let the roots get very dry, particularly in the case of the evergreen plants. A cellar in which potatoes will keep well is a good place for such pot plants as those mentioned, except that while the potatoes like darkness, growing plants prefer the light.

DUTCH AND OTHER BULBS AS HOUSE PLANTS.

F. E. W., Warwick, Mass., asks how to grow (1) freesias, (2) white Roman hyacinths, (3) Duc van Thol tulips, (4) large flowering narcissus, (5) jonquils.

1. Take a 5 or 6-inch pot, drain it well, fill it half full with rich light soil, now set the freesia bulbs on this, heads up and 1 to 1½ inches apart, and fill up with the soil, give the pot a sharp rap on the table to settle the soil firmly about the bulbs. Now give a watering through a water pot rose and place the pots out of doors where they will be shaded from sunshine; don't bury them over with earth or ashes as you would hyacinths or tulips as the freesias soon begin to grow, and it should be our aim to get them up stocky. If you plunge the pots in the ground, a few degrees of frost won't hurt the tops providing it does not come suddenly. Or the newly potted plants can be kept in a shaded frame, or north-facing window. Bring them indoors when frost comes or protect them in a pit or frame. When they begin to grow, set four or five little firm stakes into each pot near the out edge and run a fine string around these to keep the freesias erect and from toppling over. Water freely all the time. After the plants have bloomed keep them green and growing by still giving them water as they require it, so as to get good bulbs for next year's work, for freesias don't deteriorate as hyacinths do.

As regards the others read what Mr. Scott says, page 409, and to give you confidence in his teachings we may say that he grows for cut flowers tens of thousands of these bulbs every year.

The Roman hyacinths, tulips, and narcissi should be potted at once, but the tops of the hyacinths and tulips should be a little above ground; the large narcissus may be grown in the same way or altogether under ground, as you wish; we prefer to keep the jonquil bulbs all under ground. Some of the Roman hyacinths may be kept warm from the first and had in bloom for Thanksgiving, and by cooler treatment others retarded till March. Don't hurry up either trumpet narcissus or jonquils; keep them in the cellar till they show signs of rushing up, then bring them to the light. We cannot advise you to grow many Duc Van Thol tulips, their only virtue, in our eyes, is their earliness, and unless they behave pretty well they are very disappointing. To get good success with tulips don't hurry them.

A SICK BEGONIA—ECHEVERIA.

H. E. L., Conn., sends a spray of sick begonia and asks (1) what is its name, and what ails it?

2. Why do the lower leaves of my echevrias dry and fall off? The drainage seems to be good. Do they like much sun or will they do better in partial shade? And should they be well watered or kept dry?

1. It is *Begonia insignis*. The ailment is local and we can not tell what it is. Raise a few young plants of it every year from cuttings or slips in early spring, and don't overwater them. Old plants of this species are apt to get enervated.

2. You don't give us material enough to work upon. You don't say whether the echeverias are dwarf sorts like *secunda glauca*, or tall ones like *metallica*, nor whether they are planted out or grown in pots. Over-dryness in summer will cause them to lose their lower leaves, and the same cause, also a rush to bloom, will cause the same defect in the case of tall sorts like *retusa* and *metallica*. They like open sunshine, but not a scorching exposure. While they are in full growth in summer they like moistish ground, but they shouldn't be continuously wetted overhead, better give them a thorough good soaking occasionally than light waterings frequently. In winter they should be kept somewhat dry.

AMARYLLIS—FUCHSIAS—CRINUMS.

W. A. W., Emmetsburg, Iowa, writes:

1. I purchased a number of amaryllis bulbs this spring, which proved to be badly infested with mealy bug. They have made no growth, as the leaves are destroyed as fast as they push out from the bulbs. I have picked them over time after time, but the bugs have gotten so far into the bulbs, as to be difficult to get at. What will destroy them?

2. Where can fuchsias *fulgens* and *serratifolia* be obtained?

3. Are crinums *ornatum* and *Moorei* the same? I have them from different firms. I have not yet bloomed them, but their growth is identical, much resembling a stalk of Indian corn in appearance.

1. Shake the bulbs out of their pots and wash them perfectly clean from mealy bugs or any other pests, then pot them into rather small pots, potting firmly. Keep moderately moist but inclining to the dry side, and in winter let them dry off altogether.

2. *Fuchsia fulgens* from Currie Brothers, Milwaukee. *F. serratifolia* may be harder to obtain. Has anyone got it for sale?

3. They are the same species. The proper name is *C. Moorei*.

THE GREENHOUSE.

It is time everything now was being taken indoors, and arranged. What you can not get into the greenhouse store in cold frames where they can easily be covered with mats or straw or shutters to save them from inclement weather. Avoid over crowding. Have the pots all washed clean, and the plants neatly arranged in the house, it adds so much to the pleasure one gets from a greenhouse.

Start up the fire early in the afternoon to keep the temperature up while it is up; this too is economy of coal, less firing being necessary, for the same end shut up early in the afternoon to save the sun heat. Don't run high temperatures at this time of the year, and don't syringe the plants late in the afternoon. Read the instructions given in last issue (pages 8, 9), they are applicable yet.

STURTEVANT'S GOOSE FLOWER.

The accompanying illustration engraved from a photograph taken by me expressly for GARDENING shows flowers of this strange plant that have been in blossom in the conservatory at Washington Park, Chicago, and about which you had a note in last issue. A party of picnicing children visiting the conservatory saw the curious blossoms, and unanimously declared they looked just like a goose. An omnipresent newspaper reporter struck with the juvenile idea made good capital of the same in a racy, catchy article in his paper, and from that time on while they lasted from 3,000 to 10,000 people a day crowded out to the park to see the wonderful goose flower.

The plant is a long running vine, nine months old, and was raised from a cutting of the one shown at the World's Fair. It is growing in a box 18 inches deep, and 12 inches square at the bottom and 14 inches at the top. It seems to be a very rampant free blooming vine needing lots of room to show it to advantage. At one time I counted twenty-five flower buds on it, but on account of having to move it from a small greenhouse to a roomier structure, a good many fell off. Nine of them however have blossomed into perfect flowers each one about three feet long including the tail-like appendage. One flower is shown full front, of the others the side or nearly back view is given. What looks like superfluous flower stems in the photograph are strings used to tie the flowers into a set position so that visitors can get a better idea of their resemblance to a goose.

Chicago. F. C. SEAVEY.

[The original species, *Aristolochia gigas* is a native of Guatemala, and this extra large variety was introduced to cultivation a few years ago by Mr. E. D. Sturtevant, a florist of Bordentown, N. J., and named *Sturtevantii* in compliment to him, by the botanical authorities at Kew, to whom he had sent living plants. It grew in the gardens there with wonderful vigor having as many as fifty flower buds on it at a time. But while the flowers are very striking in appearance, they are ill-smelling. As a rule when open they measure about 11 or 12 inches wide by 15 to 22 inches long, not including the long tail-like appendage, which measures about 2 to 3 feet in length.—ED.]

CHRYSANTHEMUMS.—If in pots, keep them well watered at the roots, and if they are root-bound feed them with weak liquid manure. Don't crowd them, else they will drop their lower and inner leaves rendering the plants scraggy looking and naked. Tie them securely to neat stakes, using as few as possible to each pot, and do the tying so neatly and unobtrusively that a person will not notice the tying. Be particular about disbudding. Don't leave more than one flower bud on each branchlet; keep the most perfect bud and remove the others, for it is better to have one fine full flower than several undersized imperfectly developed ones. If pos-

THE "GOOSE FLOWER" (*Urodolichia grandiflora*, Nat. Order Asclepiadeæ.)

sible preserve the plants from frost. A slight frost might not hurt the plants, but it wouldn't do the flower buds any good. If indoors, keep the plants where they will get good light and free ventilation; if outdoors or on the piazza have them where cold winds can not sweep through them, and never let them get drenched with cold rains. But don't coddle them. If you have no house room for them it is an easy matter to get up a make-shift shelter for them in a warm, sheltered nook or spot. Make a low house-like frame of light scantling and enclose it with hotbed sashes not now in use, or with oiled calico, or plant cloth. Store the plants inside of it, either planted out close together or in pots, and keep the house shut up in cold or wet weather, and opened at the sides in fine weather.

From New York southward we can bloom a good many chrysanthemums in the open garden. When the summer flower beds—if in sheltered parts—are emptied of their tender occupants, they are filled with chrysanthemums. This should be done as soon as possible, and in transferring the plants from their summer quarters to the beds in which we wish them to bloom preserve all the ball possible to their roots.

PROPAGATING GERANIUMS FROM CUTTINGS.—R. J. R., St. Joseph, Mo., writes: —I propagated several thousand geraniums last April by putting the cuttings direct in 2-inch pots in soil (in place of sticking them first in sand), succeeding better in that way. I lost fewer cuttings, saved labor and raised extra good plants. Will I succeed in this manner in October and November as well as in spring from out of door and greenhouse grown cuttings? I raise about twelve thousand geranium plants. Growers in Europe propagate in this manner successfully.

You can root them in that way quite well, but not as easily as you could in August and September, or in spring. Be careful to keep them dry overhead, especially in the afternoon and at night, remove every damping leaf and scale as soon as you notice it. Set the pots on a bed of ashes or sand on the bench, and keep them only moderately moist. Geraniums of most all kinds strike readily from outdoor grown cuttings.

GLOXINIAS, HOW TO WINTER THEM.—S. P. J., Minnesota, asks: "How to carry seedling gloxinias over winter. Two years ago we had over two hundred at this date (middle of September) three quarters of which had not bloomed. I got them all into pots and let them dry off in the cellar where they probably dried too much, for only thirteen showed life in spring. We have now nearly as many as before yet in frames. What shall I do with them?"

Do as we do. We have a large number in pots, now on their sides and drying off under a bench out of doors, they get a little water from drip and rain. In a few days we will bring them indoors laying them in a pile on their sides in the cellar or under a greenhouse bench, where the temperature will run about 50°, and where they will be dry, but not dust dry. We store lots of them in this way every winter and they keep fine. We also have a frame filled with gloxinias, now past, but some of them are still green. In a few days we will cut the tops off all of them then dig up the roots and save them. We take shallow boxes, say 3 or 4 inches deep; such as are used for starting seeds or cuttings in, and lay the gloxinia "bulbs" in them one deep and close together, covering them over with light loam or sand; now store them in the cellar or elsewhere as stated for those in pots. But don't lay one box above another unless there is a wide air space between them and while the earth or sand in the boxes should be pretty dry, it should not be dust dry. Kept in this way we lose very few.

The Flower Garden.

NOTES ON CANNAS.

GILT EDGED CANNAS are what we call those of the Madame Crozy type that have a deep gold band around their petals. A year ago Paul Sigrist was the *par excellence* of this type, but to-day it is completely superseded by three others, namely Queen Charlotte, Souvenir d'Antoine Crozy, and James Farquhar, all having a close resemblance to each other. Most fanciers regard Souvenir d'Antoine Crozy as the best because of its intense, glowing color, while others look upon Queen Charlotte as the better one. We must grow them a year longer before we can decide.

CANNAS Florence Vaughan, Antoine Barton, and Comte de Bouchard look very much alike. Florence Vaughan, however, having the right of priority is the proper pame.

MADAME MONTEFIORE CANNA has large pale yellow flowers with faint markings like those of Capt. P. de Suzzoni and is regarded as the yellowest among our showy large blossomed sorts.

ELDORADO CANNA, a yellow flowered variety still in the hands of F. R. Pierson Co., however, is regarded as the greatest acquisition we have yet found in the way of a yellow canna.

OUR AMERICAN FLORISTS wish the French canna raisers were a little more discriminating in the new varieties they send out year after year. In order not to get left the American dealers have to buy the full set of the French new sorts, and after growing them for a year have the mortification of dumping the majority of them into the rot pile, for they are trash. They would far rather pay $5 a plant for the really good sorts, than $1 a plant for good and bad as they come.

UNIQUE ROSE CANNA.—The color of the blossoms strongly reminds us of those of *C. Ehemannii*, but they are not pleasant to look upon.

"MME. CROZY CANNA," says one of our keenest fanciers, "is among cannas what Verschaffeltii is among coleuses, indispensable; come or go what may it will stay."

COLUMBIA, the crimson flowered canna from Iowa, that was so highly honored at the World's Fair last year, is said to retain every feature of its promised excellence.

ORANGE PERFECTION has disappointed a good many people; it doesn't seem to be a free growing sort. But let us give it a further trial.

PAUL MARQUANT is a splendid variety, but there is a rumor that a coming new one named Sunshine is going to supersede it. If it does, it must be extra fine.

SIX GOOD CANNAS no one should be without are Mme. Crozy, Charles Henderson, Alphonse Bouvier, Paul Marquant, Florence Vaughan, and Queen Charlotte. Others may be better, but we will wait till we prove them before dropping any one of these.

WATER AND MANURE.—If you want good cannas plant them in rich deeply unfastened soil, a mulching of manure too will help them, and after they start to grow keep them thoroughly watered,—no stinted draught but flooded soakings. But let the water be given at the root and not over the head. Hosing over head is ruinous to the flowers.

FLOWER GARDEN QUESTIONS.

A. S., Whitewater, Wis., asks:

1. I have a Dawson rose three years old. It grows thriftily but has never blossomed. What is the matter? How should it be pruned?

2. Is any hardy species of tamarix evergreen, or are they all deciduous?

3. How early should chrysanthemums planted in the open ground in May be potted? Should we wait for the flower-buds to form first?

4. What is the best way of carrying French cannas through the winter? Should they be packed in sand?

5. I have had a plant of *Eucharis Amazonica* for the past two years; in fact it has become four plants in one pot. As a foliage plant it is fine and thrifty; but it does not offer to bloom at all. It is now putting up new leaves. What shall I do to make it blossom?

---

1. It needs very little pruning. Thin out poor wood, and keep in the strong, tipping the shoots back a little, and if they are several cut some of them back half ways. We never knew it to fail to bloom. But it is strictly a one crop rose. Send us a spray that we may see you have the genuine article.

2. No. All are deciduous.

3. Lift and pot them at once. Stake them and sprinkle them overhead as soon as you pot them, and keep them somewhat shaded for a few days, and dewed overhead too.

4. Lift the clumps, don't shake the dirt away from them, then pack them close together but only one deep, on the cellar floor or elsewhere they will be slightly moist all winter and in a temperature not under 40°.

5. After this crop of new leaves is pretty well matured, keep the plant rather dry (but not so much as to wilt the leaves) for two to three months, then increase the moisture and warmth a little, and it will probably bloom all right.

THE FLOWER GARDEN.

Finish gathering all the seeds you want of salvia, petunia, canna, scabios, Drummond phlox, coreopsis, vinca and such other things as you yet can get in quantity. Fill up the cold frame with seedlings as directed in last issue, page 4. Clear off all rubbishy plants and keep things neat and tidy, for neatness and cleanness make a garden look attractive even when there aren't many flowers in it.

If you haven't secured cuttings enough of geraniums, coleus, alternanthera, ageratum, and other bedding plants, get them at once before frost strikes them. As soon as frost injures our flower garden plants we may as well clear them out and fill up their places with Dutch bulbs—hyacinths, tulips, daffodils, etc., for a display in spring.

All tender plants as palms, ficus, crotons, begonias and the like that are bedded out in summer but which we also desire to save should be taken indoors at once, for cold nights will injure their leaves, and cold rains rot their roots. They may look fresh enough, but it is time now they were inside.

It is a good time now, while the stems are alive, to dig up and save the many miscellaneous tender bulbs that we plant out to bloom in summer. They consist of tigridias, *Milla biflora*, *Bessera elegans*, some zephyranthes, some oxalis, crinums, arums, and the like. Put them into paper or muslin bags, properly labelled, and store them where they can be kept dry and frost cannot reach them. A shelf in a cupboard is generally the place where they are kept when we haven't many of them.

CANNAS stand about as much frost as do dahlias. After frost comes to hurt the leaves cut them over close to the ground, dig up the roots, label them, and without shaking the dirt from the clumps, take one or more clumps of a kind, as you may need, and store them close together, heads up and only one deep on the floor or on a shelf of the cellar where frost cannot reach them nor hot furnace heat scorch them. If you don't care to put them into the cellar yet you may store them in a shed or most any where covered over with their cut tops or sedge to protect them from frost, and keep them for a month or more yet in good form before storing. These new fine flowered dwarf cannas cannot be dried off in winter with impunity as we used to the old *Canna Indica*.

GLADIOLI.—It is time to dig up and save all that are out of bloom; we gain nothing by letting the bulbs stay another day in the ground. Cut them over close to the ground, dig them up, saving every little bulblet for stock, and store them in flats in a dry airy shed where frost cannot reach them. In a week or two when they dry pretty well we can remove the pieces of stalk left to them, and store them in less bulk indoors or in the cellar. But frost must never get at them. No matter how hardy the bulbs may be in the ground, frost will kill them if it gets at them out of the ground.

SOME OF THE NEWER SWEET PEAS.

Eckford's new Venus is his crowning production. In form, size, coloring and vigor it is superb. The color is a delicate salmon buff self.

Princess May is badly mixed in my rows with The Queen and several other inferior forms, but what seems to be the type is a rather purer lavender than the fine Countess of Radnor.

Bronze King has white wings and standards of a curious tint supposed to be bronze. It is very pretty and distinct.

Her Majesty nearly resembles Splendor, but is not quite as deep colored as that fine variety.

Rising Sun is a charming blossom showing several shades of pink, but it is not large nor of the finest form.

American Belle fails utterly to show its characteristic spots as yet, and reminds me that three years ago some plants of Blanche Ferry gave spotted blossoms late in the season, but seed saved from them failed to reproduce such markings the next year.

Ignea germinated so poorly that there is only one sickly plant, which has not yet bloomed.

Mrs. Eckford behaved nearly as badly. The blossoms are a very pretty but faint primrose tint.

Emily Henderson, a very fine white variety, germinated very, very badly out of doors as it did last year, and that is a bad fault in a flower aspiring to popular favor. Not one of 70 seeds germinated out of doors. Seed planted in a pot in a frame did fairly well.

These newer sorts and such of the old ones as are of defective germinating power were started in 8-inch pots of mellow soil in a frame, as recommended by Rev. Mr. Hutchins, and were transplanted when an inch or two high to their place in the rows. Once started the only enemies that are at all formidable are snails, English sparrows and hot dry weather. Lime dust defeats the snails, netting securely fastened circumvents the sparrows, who take a fiendish delight in nipping the buds and young shoots, and deep preparation of the soil, trench planting of the seed, a liberal mulch and frequent *soakings* from the hose discount a dry spell. With such treatment sweet peas in this latitude and on a heavy soil will scarcely flag at all before severe frosts if absolutely no seed pods are allowed to form. In the past three days I have cut over 1,300 sprays of bloom from a double row 35 feet long.

G. V. H.

Corning, N. Y., August 7, 1894.

WILD PLANTS IN BLOOM SEPTEMBER 20.

Wild asters are making a grand display. One of the best of the genus is the New England aster (*Novæ Angliæ*). It grows five to six feet high and produces for a month or more large purple flowers. No one should miss cultivating it. *A. patens*, two to three feet and in several varieties has slender but numerous branches, which are full of bright blue flowers. Some years ago I found one of these in Maryland which grew six to seven feet in height and differed widely in leaf and habit. *Prenanthoides* two to three feet bears showy pale blue flowers. *Undulatus*, pale blue, two feet; *multiflorus*, white, tall; *dumosus*, purplish white, two feet, and *tenuifolius*, pale purple, three feet, are also in fine bloom. A closely allied and beautiful plant, *Diplopappus linariifolius*, grows but a foot high and has violet colored flowers. It is a good garden plant.

In wet grounds an annual tick seed (*Coreopsis trichosperma*) has attractive deep golden yellow flowers. As it seeds freely many plants come up together, making when in bloom a fine display. It is often grown in gardens, as it should be. [One of the burr marigolds (*Bidens chrysanthemoides*) about a foot high, and growing alongside of muddy streams has showy yellow flowers, but they are usually hidden among the taller grasses and weeds. *B. connata*, also a swamp plant is inconspicuous.—ED.]

In fields where it has a chance to develop itself, the large purple flowers of the tall thistle, *Circium altissimum* are quite beautiful. In favorable situations it grows six to eight feet in height, but in shaded or poor ground it is often not half of that.

What is known as yellow foxglove (*Gerardia quercifolia*) with golden yellow flowers is one of the prettiest blossoms of the season. Another species (*pedicularia*) has yellow bell shaped flowers. *Purpurea* has purple ones; all of these are found in dry woods. But unfortunately for those who wish to transplant them they are parasitic on the roots of other plants. The only way to have them in the garden is to sow the seeds in spring, which sometimes results in the giving of a few plants.

The horse balm (*Collinsonia Canadensis*) has large panicles of inconspicuous greenish white, small flowers. The hedge hyssop (*Lophanthus nepetoides*) three to

six feet high bears greenish yellow spikes of flowers.

Among golden rods in bloom are *stricta* growing in wet woods, two feet, *speciosa* a fine showy species, rich yellow, three to six feet; *nemoralis*, a common roadside sort with grayish foliage, two feet; *gigantea*, a large species, in dry fields five to six feet; and *ulmifolia*, another one of large growth.

The lovely fringed gentian (*G. crinita*) is not as plentiful as it used to be, but we still get it in moderate numbers. The flowers of the closed gentian (*G. Andrewsii*) do not open as the other does, they give one the impression that they are only flower buds.

Polygonum Pennsylvanicum, *P. Hydropiper*, *P. articulatum* and *P. dumatorium*, all knot weeds, are also to be met with. In wet meadows the beautiful *Sabbatia chlorides*, the American centaury, gladdens us with its bright purple flowers.

Philadelphia. J. MEEHAN.

GRASS—SWEET PEAS—ASTERS—LILY OF THE VALLEY.

J. D., Chicago, asks:

1. Is any lawn grass seed free from crab grass, that makes its appearance in August and is such a disfigurement to lawns? I have bought lawn seed of various dealers and got lots of crab grass in each.

2. How should soil be prepared in the fall for sweet peas?

3. For the past five years I have had splendid success with China asters. This year they did not do well. Many of them blighted and died. On examination of the roots I found clusters of the common angle worm bunched in amongst them. Do you think the trouble was due to their presence?

4. How should soil be prepared for lilies of the valley? Do they require fertilization from year to year?

1. We are inclined to think the crab grass seed is in your own ground rather than in the lawn grass seed you bought. If crab grass is indigenous to your soil it is almost impossible to eradicate it no matter what we are told to the contrary. To show you how unlikely it is to be in the seed you buy, let us explain: Blue grass, red top, bent, and the other fine grasses cultivated for lawns, come up, blossom and ripen their seed, and the crop is harvested, before it is time for crab grass to be in blossom. And no person would grow crab grass seed to mix with lawn grass.

2. By double deep digging or plowing, and mulching with well rotted manure, but don't let the manure touch the seed. The soil should be good, rich, and not apt to dry out in summer or lay under water in winter.

3. The angle worms had nothing to do with the aster failure. Their presence might be due to over fatted ground. A liberal watering of weak lime water would move them quick enough.

4. Lily of the valley loves rich ground. We grow it in a large quantity. In November after clearing off the dirt and leaves from the patch we cart on a lot of rotted manure spreading it evenly over the ground about two to three inches deep and leave it there. This is repeated every year, and we get splendid flowers. But we must observe not to let the plants get too thick else they will weaken each other. While this manuring strengthens the plant it isn't necessary; we also get capital flowers without it.

TUBEROUS ROOTED BEGONIAS.—As soon as the frost destroys them cut over their tops close to the ground, dig up the roots and store them one-deep and close together in three or four inch deep flats with a little earth, sand, or sawdust about them; then take them into a shed, cellar, room, or elsewhere where they can be kept quite cool but frost cannot reach them. The air of the place should be dry and sweet, not close and muggy. Gloxinias, caladiums and some other roots should be kept somewhat warm, say 50° in winter, but tuberous begonias keep better in a temperature of 40°. If frost is apt to get into the place they are stored in, cover them over as you would potatoes or apples to save them from frost.

FOR SEED.—Tuberous begonias do not seed freely out of doors, but if you lift a few of the best of them and pot them and bring them indoors either into the window of a warm room or a greenhouse, they will seed quite freely. Florists always save their seeds from potted plants. They are very easy to lift, and live nicely when potted, but keep them dry overhead and remove all fallen or decaying leaves and flowers as soon as you see them, else they will rot the others.

Don't try to strike them from cuttings now for you cannot do it, and if you could, the rooted cuttings wouldn't form tubers before winter, hence when they faded they would die, for there would be no tuber to perpetuate them. You cannot keep them growing all winter, it is contrary to their nature. But potted plants of these begonias do make lovely specimens in October and early November.

TUBEROUS BEGONIAS; SIDE SHOOTS NOT BLOOMING.—Why have the side flower buds of my tuberous begonias seldom opened this season? The plants have been thrifty as to leaves and stems with abundant and large buds, but only the middle ones opened well. S. P. J.

The side buds of tuberous begonias never open the same as the middle flowers; there is a great difference in the formation of the blooms. The female flowers are formed on the side and are of a different shape and seldom as large as the middle or male flowers. The female flowers can be distinguished by the seed pod at the back of the petals. THOMAS GRIFFIN.

Westbury Station, N. Y.

RED SPIDER ON SWEET PEAS.—P. W. S., Kansas City, writes: I had an abundance of bloom until about the 10th or 15th of August, when some very small grub or worm began to work on them and all at once the leaves all died except at the very ends of the plants, which have stayed green and still show an occasional sickly looking bud. The worms spin a very delicate gauzy net. Have not seen anything about such an enemy to the pea culture in any of the works or flower papers, and wonder if others are troubled the same way.

No doubt, red spider. Heat and drouth, and an enervated condition of the vines caused by dryness at the root are all favorable to its development. It multiplies with extraordinary rapidity, attacking most anything, trees, shrubs or herbs. Out of doors there is practically no cure for it. Next year you may not be troubled with it at all.

VINCA ROSEA—I LIKE IT NOW.—I saw your allusion to my disappointment page 374, on first seeing your *Vinca rosea*, and you are quite right in thinking that further knowledge would alter my opinion. I have had the rose and the white colored ones here this summer, and considering the luxuriousness of growth and beauty of flowers I am a great admirer of it now. I planted patches of it in all kinds of soil, good and poor, watered some of these patches, and left others severely alone, and it has done finely (equally so) in all the patches.

Flushing, N. Y. J. B.G.

CLEMATIS FUNGUS.—Mr. Egan did not find the solution of copper effective in staying the clematis fungus. It is too late in the day to dispute the power of copper solutions against any or all forms of fungus. My young friend simply locked the door after the horse was stolen.

THOMAS MEEHAN.

Roses.

ROSES IN WINTER.

I would like to know how to bloom roses in winter and early spring in an ordinary living room, or in a cellar which has a west window. This room of the cellar is used as a laundry and will be kept warm to keep the water pipes from freezing. The temperature will average about 50° except Mondays and Tuesdays when it will be warmer. As other plants such as geraniums and hyacinths do well here, I thought roses might also succeed, although of course they would not do as well as in a greenhouse. I have never attempted raising roses before, but thought I would like to try. I obtained my plants from a reliable florist this fall and they include the following varieties: The Bride, Bridesmaid, La France, Star of Gold, Sunset, Mme. Welche, Perle des Jardins, Duchess of Albany, Ernest Metz and Mme. de Watteville. T. D. A.

South Bend, Ind.

In a warm sunny window you can get nice roses in winter, especially after February. The plants should now be well-rooted in their pots, and kept cool and somewhat dry, but not nearly quite dry. Prune them back more or less according to their kind and strength in November, and don't hurry them till after Christmas. Then place them in a warm sunny window give them water more freely at the root and in the morning and early afternoon of bright days dew them overhead with a fine spray. The cellar window is a very poor place for roses in winter, and a west exposure is far from a good one for them. Trying to get roses from the cellar window will probably spoil your plants and disappoint you in results.

ROSE ALSACE AND LORRAINE.

S. W. A., Lake Geneva, Wis., asks: Can you tell me where I can buy plants of the Alsace and Lorraine rose for planting in a rose garden?

We do not know where plants of the rose in question can be obtained in this country; we have seen it described in some of the European catalogues as a hybrid perpetual; we find it in the catalogue of Ketten Freres, Luxembourg, and also in that of P. Lambert, Trier. It is described as a large dark red rose, introduced by Duval in 1880.

ELLWANGER & BARRY.

Rochester, N. Y.

GARDENING

WILLIAM FALCONER, Editor.

PUBLISHED THE 1ST AND 15TH OF EACH MONTH
— BY —
THE GARDENING COMPANY,
Monon Building, CHICAGO.

Subscription Price, $2.00 a Year—24 Numbers Advertising rates on application.

Entered at Chicago postoffice as second-class matter.

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All communications relating to subscriptions, advertisements and other business matters should be addressed to The Gardening Company, Monon Building, Chicago, and all matters pertaining to the editorial department of the paper should be addressed to the Editor of GARDENING, Glen Cove, N. Y.

GARDENING is gotten up for its readers and in their interest, and it behooves you, one and all, to make it interesting. If it does not exactly suit your case, please write and tell us what you want. It is our desire to help you.

ASK ANY QUESTIONS you please about plants, flowers, fruits, vegetables or other practical gardening matters. We will take pleasure in answering them.

SEND US NOTES of your experience in gardening in any line; tell us of your successes that others may be enlightened and encouraged, and of your failures, perhaps we can help you.

SEND US PHOTOGRAPHS OR SKETCHES of your flowers, gardens, greenhouses, fruits, vegetables, or horticultural appliances that we may have them engraved for GARDENING

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ANNALS OF HORTICULTURE FOR 1893.

This is the fifth volume of the series of annual books gotten up by Professor L. H. Bailey of Cornell University. It contains about 180 pages, costs a dollar, and is published by the Orange Judd Co., New York. It is largely devoted to horticulture at the World's Fair, Chicago, last year. The ornamental and landscape features of the exhibition are discussed, the fruit and other exhibits enumerated. In fact it is unique as being the only record of the horticultural department of the World's Fair, that we know of. In the way of living plants every plant exhibited is mentioned, that is the names under which the plants were shown are given. We value the book highly as a work of reference.

THE EARL OF HARRINGTON has opened a fruit and vegetable store in London.

HOME MADE MUSHROOM SPAWN.—We have received from R. & J. Farquhar & Co., seedsmen, Boston, a sample brick of home-make spawn. The brick is completely permeated by the bluish white mycelium, and even before we plant it we have no hesitation in saying that it is good spawn and full of life.

SEEDLING CANNAS.—We have received from Mr. Antoine Wintzer, West Grove, Pa., a boxful of flowers of his seedling cannas. Some of these blossoms are very beautiful, large, full, bright, and distinct; two seedlings from Queen Charlotte are especially attractive, one is in the style of the mother but more golden. Some yellows are very yellow, one being pure yellow, but unfortunately rather narrow petalled. A seedling of *Canna Ehemannii* has blossoms not unlike those of the parent in color. By the way, we never before knew *C. Ehemannii* to ripen seed.

CLERODENDRON TRICHOTOMUM is now (September 10) in full bloom. It is a tall, dense, broad, and bushy hardy shrub from Japan. Its leaves are heart shaped, large, bold, dark green, and like those of most of the genus, ill-smelling; the flowers are white with reddish-purple tinged calyx, peculiarly fragrant, and produced in terminal cymes. This bush has retained its foliage and kept its healthy green color all summer notwithstanding the severe drouth. It is a very fast grower, attaining, under favorable conditions, a height and spread of six or seven feet in three years. While it is perfectly hardy at Dosoris we are not prepared to say how hardy it may be in more rigorous places; but even if cut to the ground, providing its roots have been well mulched, it will start from the bottom the next spring. A very good addition to large gardens or parks, but not neat and pretty enough for small gardens.

MAGNOLIA PARVIFORA.—The meaning of this name is small-flowered magnolia. A subscriber wants to know why we didn't give the English name as well as the botanical one. Because there are several magnolias that have smaller flowers than this one has, *M. glauca* and *M. Kobus* for instance. The specific name (*parviflora*) is a most unfortunate and undeserved one, and in the eyes of those who don't know the plant, it has a tendency to depreciate it.

WILD MUSHROOMS are unusually plentiful. The long summer drouth, recently succeeded by the copious rains is the cause of this. But we never knew wild mushrooms to be more infested with maggots than they are this season.

ASTER BLISTER BEETLES have been very numerous and destructive this summer. They come in July, last through August, and disappear before the middle of September. They are nearly an inch long, black and voracious; indeed, it is almost incredible the amount of mischief they can do in a short time, eating over the aster flowers. Their technical name is *Epicanta Pennsylvanica*, and they have before now been referred to in GARDENING, August 1, page 378. Tedious although it may be the best way to get rid of them is to shake them off into a wide mouthed tin with a little water and kerosene in it, as we do with rose bugs in June.

SOAP SUDS for house plants and those about our doors, in last issue, page 10, has brought us some comments. We are glad of this, for we speak from many year's actual, practical experience, and cannot retract one word, no matter how long cherished, pet a theory the soap suds notion may have become. Use all the soap suds you may out in the garden, but keep it away from about the house, it looks bad and smells bad, and we have other means of feeding our plants that are much more cleanly and quite as effective.

HEDYSARUM MULTIJUGUM is the name of a half-shrubby plant from Central Asia, and which has been recently introduced to our gardens. It has pinnate (15 to 20 pairs) leaves and loose racemes of pea flowers. "They are bright red-purple, with a white and yellow spot at the base of the standard." The plant is said to be remarkably handsome but we have not yet tried it.

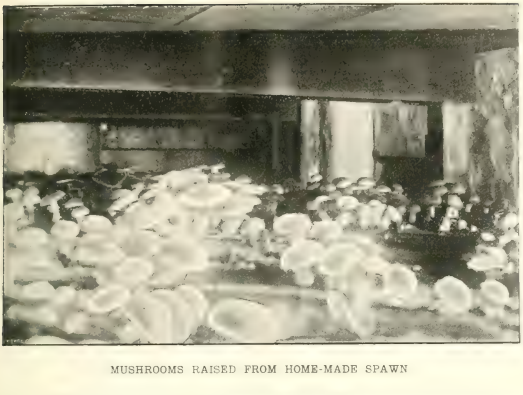
CUPRESSUS NUTKAENSIS VAR. LUTEA is one of the novelties among hardy evergreen conifers. Its terminal growths are said to be of a clear bright yellow color. Although the typical green form, usually called *Thujopsis borealis*, is hardy here and makes quite a pretty evergreen, sometimes plants of it have a disagreeable way of dying off suddenly, and without any visible cause.

TCHIHATCHEWIA ISATIDEA is the name of a little ornamental cruciferous plant, a native of Armenia and a novelty in our gardens. No matter how pretty the plant may be that name will kill it in cultivation. But we might call it the rosetted stock, and put up with it in this way.

TEAS' WEEPING MULBERRY.—When Mr. Temple saw it on its own roots and its main stem trained up as straight as a ship mast and how the arms drooped straight down all around, and that the trunk was as stiff as that of any other tree, he declared he was going right home to do the same with his squat headed things.

NOT A CANNA.—G. R. C., Springfield, O., writes: A Texas correspondent sends us enclosed flower. He claims it to be a canna and white flowered. He sowed canna seed and this was one of the products. It somewhat resembles a canna in foliage. No, it is not a canna. It is probably a *Curcuma*. The flowers were damp and rotted when they got to us; we base our opinion on the thick set spike and leaflet. *Curcuma albiflora* has white flowers.

BUILDING A GREENHOUSE.—Now is the time, when we have more plants than we know what to do with, that many amateurs wish they had a small greenhouse to relieve the congestion. But they are afraid to build one because they don't know how, and they fear the expense, and they have no idea of how to heat it. Select a warm, south or southeast facing exposure, in front of a building, close fence or wall, and make up your mind about how much of a greenhouse you want. If you want a pretentious structure get a regular greenhouse builder to put it up for you; but if it is simply a plain, cheap house you are after, make a plan of it and send the same to some builder dealing in greenhouse materials (several advertise in GARDENING) and ask him what he'll furnish you the woodwork for—that will include grooved sash bars, mountings, plates, and as much more as you wish, with them on hand, any handy person, or the village carpenter, can put the house together. It is far better and cheaper to get the sash bars, etc., from these build-



MUSHROOMS RAISED FROM HOME-MADE SPAWN

ers than to have it worked out at the local planing mill in your own village. And it makes greenhouse building very simple and quickly done. The house may be heated from the residence, or independently with an oil stove arrangement, or a base-burner hot water boiler.

The Fruit Garden.

THE FRUIT GARDEN.

Gathering the apples and pears is what now concerns us most. They are dropping so fast that if we let them hang much longer on the trees we won't have many prime fruits to save. We pick up the best of the windfalls and lay them aside for early or immediate use; but all the hand picked fruit are carefully put into barrels having several openings in their sides. We keep these barrels in a cool, airy, shady place, and set on boards to keep them off the ground, and covered over to save them from rain. That is with apples. But we store the pears two to three deep on shelves in a cool, airy room, darkened in the day time. As soon as the pears begin to ripen we must reduce their bulk by spreading them out to one or two thick. Pears spoil quicker than apples and need more attention.

It is now a good time to renew our plantations of blackberry bushes; in transplanting them cut the canes back considerably, and be very careful to preserve the piece of underground stem or cross root from which the canes have sprung. Raspberry bushes may also be transplanted, but in both cases it will be prudent to lay down the canes this coming winter and cover them and the crowns well with several inches of earth over winter. As a rule growers prefer planting raspberries in spring.

THE BLACK CURRANT BUSHES DON'T BEAR FRUIT.

The Rev. S. H. McNeel, Ontario, writes: We have 30 to 40 black currant bushes which in their present condition are unprofitable. When we came here four years ago the bushes were large, brushy and in a heavy blue grass sod. I dug away the sod, cut out most of the old brush and gave them a good dressing of old chips, rotten wood and long manure, and have kept them free from grass and weeds ever since. With the same treatment our red currants and gooseberries have yielded well, but the black currants have borne very little. They start to grow all right in the spring but in a short time the leaves become shriveled and are covered with whitish spots, the spots on the underside of the leaf becoming brownish as the leaf gets older. The young leaves appearing later in the season are pale. They either fail to bloom, or what is more usual, fail to set fruit and most of what does set never comes to full growth. What is the best thing to do with such bushes? Enclosed are some of the leaves for you to examine.

Dr. Byron D. Halsted, New Brunswick, N. Y., kindly answers

The black currant leaves are badly infested with a fungous leaf parasite, *Septoria Ribis*, which causes the foliage to become spotted and comparatively worthless. There is nothing to be done to save the leaves of this year, but for next season spray once a week with Bordeaux mixture beginning as the buds unfold in spring.

MULCHING STRAWBERRIES.

C. H. McN., Chesley, Ont., writes:—In giving directions how to winter strawberries all writers say not to mulch till the ground is frozen hard and some say "hard enough to carry a wagon." Here the snow falls before the ground freezes. I never saw the ground frozen too hard to dig up nicely with the spade. The snow usually lies till the last of March. But from that till the weather becomes warm there is enough freezing and thawing to injure strawberries. When shall we mulch?

At Dosoris we mulch our strawberry grounds somewhere about the end of November or early in December, no matter how hard or light the frost is. Before that time we have several sharp frosts and thaws, but the ground is seldom locked up for the winter sooner than the middle or end of December, and sometimes not then. Of course it is much easier to do the work when the ground is frozen than when it isn't, and we always choose a frosty morning or day; but after we get on the mulching we let it stay there irrespective of the weather till the first of April or thereabout. And when we apply the mulching the ground is seldom hard enough to bear up a wagon, our climate isn't so rigorous. Last June both Mr. Ellwanger and Mr. Barry of Rochester saw the plantation here when it was in bearing, and both of them expressed themselves as seldom having seen a finer one. There is no hard set rule. We would mulch your strawberry patch just before we expected snow, no matter whether the ground was frozen or not.

The Vegetable Garden.

THE VEGETABLE GARDEN.

It is now an important time in this department. We are daily expecting frost and must prepare for it. If you have a patch of young snap beans, or a few rows of Henderson's dwarf Lima, or some late sown tomatoes, or a bed of New Zealand spinach, you can save them for a while by setting frames and sashes over them, and banking about the frames with a little dirt to keep all snug and warm. With mats, sedge or straw cover the sashes in the event of frosty weather. Get the cold frames prepared for lettuces. Use rich mellow soil. Plant thickly, say 7 inches apart each in the case of Boston Market. Get up the frame boards for the winter spinach. See that the turnips and beets are kept clean and the ground about them hoed and mellow to induce quick growth and tender roots. Before sharp frost comes all of these root crops should be pulled, topped and stored. We won't pull them here before the end of the month or early next one. Keep the ground mellow and clean about recently sown spinach and kale, so as to give them a good start in life.

Mushrooms.

HOME-MADE MUSHROOM SPAWN.

A year ago Mr. S. Edward Paschall, a seedsman and market gardener of Doylestown, Pa., sent us ten bricks of his home-made mushroom spawn for trial, with the request: "If the spawn is good or medium, or poor, I would like your frank opinion. * * I may say that I have none to sell." That was spawn enough to plant a goodly sized bed and insure a fair test, and we had the pleasure of reporting that we found the spawn to be as potent as any we had ever used, and it produced a fine crop of mushrooms with us.

Our illustration, from a flash light photograph, shows a portion of one of Mr. Paschall's test beds that yielded 1¼ pounds to the square foot, and we are indebted to his courtesy for its use here.

To include in a paper on mushrooms read by us last winter before the Mass. Hort. Society, Mr. Paschall very kindly told us all about how he made this spawn, but as the Transactions of the Society containing that paper have not yet been published, we will give you his method a written by himself, in his own newspaper

the *Westchester Village Record*, March last.

"Select a shed, out-building or wagon house, having a clay floor. An empty horse stall might answer, but the danger would be of too much dryness. An outside shed or wagon house is more likely to have a damp floor; but no water must be admitted, either from the roof or from surface drainage.

"Upon this floor spread horse manure that has never been wet by rains or surface water. The water of the stable will do no harm. This manure may be put in all at once or in successive layers until it attains a depth of three, four or even six inches. Loam in small quantity, mixed with it, will do no harm, and will add to its solidity. This manure may be walked upon and tramped until it is quite firm. The writer has sometimes run a small roller over it, and has sometimes turned a horse loose upon it for a day or so, in order to get it well tramped. Then let it alone for six or eight weeks.

"The upper part of the bed, when it is exposed to the air, will become very dry, but the lower part, next the clay floor, will never lose its moisture. In the lower part, in from sixty to ninety days, natural spawn of the rankest quality will be developed; and spawn thus procured may be saved for use in that shape. It may be put at once into a prepared mushroom bed or it may be dried for future use. If dried it will retain its potency for an indefinite time."

Some of our readers perhaps wish to ask: Can't I make my own spawn as well and cheaply as I can buy it? We answer, no. If you are a very large grower of mushrooms you might be able to; otherwise the chances are you'd neither make good spawn nor grow many mushrooms. Better buy what spawn you need.

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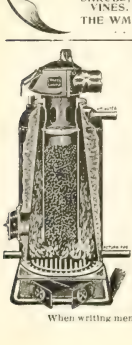

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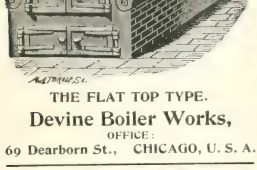

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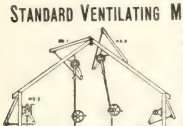

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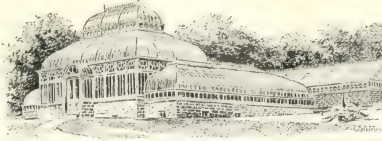

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GARDENING

Vol. III. $2.00 a Year 24 Numbers. CHICAGO, OCTOBER 15, 1894. Single Copy 10 Cents. No. 51.

LILY POND OF MR. E. MAYER BEAVER FALLS, PA.

Aquatics.

MY POND LILIES, AND HOW I GROW THEM.

There are few people who know how much enjoyment can be got from a lily pond, and it is hoped that this brief description may induce others to try the experiment as the writer did.

Perhaps a few words ought to be said in the first place about expense, because there seems to be a general idea that to build and stock a lily pond is very expensive; a few figures will dispel this idea.

The pond first built had an area of 300 square feet and was in the form of a crescent, its walls are four and a half inches thick with bricks laid in common cement (two parts sand and one of cement). As the bottom of it was clay no bricks were laid there, but a coat of cement (two of sand and one of cement) covered the clay about one-fourth or three-eighths inch thick. The bricks on the sides were plastered about one-eighth inch thick with a mixture of one half Portland cement and one-half sand, also on the bottom, and the pond never showed any symptoms of leaking. During the winter, however, the ice very slightly moved the bricks down to the ice line, and when the spring came the pond leaked and I could not find the cause till I let the water out, and then found that there was a minute crack all the way round, but this was readily stopped by applying a thin coat of pure cement with a whitewash brush. The pond is two feet deep. As to bricks, inferior paving bricks were used which cost $4 per thousand; they were rough of course but the face being covered with cement this did no harm, on the contrary, the irregular surface gave the cement a better chance of holding. These suggestions when the fact is taken into consideration that all the work is out of sight ought to be an encouragement for the enthusiastic amateur to build his own pond, and if he has never laid brick before possibly the top course might not come very even, but if such is the case a few rocks laid carelessly over the edge of the pond will hide this defect and very materially add to the beauty of the pond.

As to the best kind of plants to place along the edges: I find that large-leaved cannas on the north side, as the sun must have full sway all the time possible, iris and tall growing plants add much to the beauty, and on the south side trailing vines along the edges look well. Probably the outside adornment of the pond should be left to each person's individual taste.

To connect the pond with one of the house conductors is the best source of water supply, but hydrant water does very well. In my two ponds I grow the following varieties of lilies and other aquatic plants:

TENDER.

Nymphæa Zanzibarensis.
Nymphæa Zanzibarensis var. *azurea.*
Nymphæa Devoniensis.
Nymphæa dentata.
Nymphæa gracilis.
Two varieties of water hyacinth (*Eichhornia*).
Water poppy (*Limnocharis*).
Parrot's feather (*Myriophyllum*).
Egyptian paper reed (*Papyrus antiquorum*).

HARDY.

Nymphæa alba candidissima.

Nymphæa albida Marliacea.
Nymphæa chromatella Marliacea.
Nymphæa odorata.
Nymphæa odorata rosea.
Nymphæa odorata gigantea.
Nymphæa odorata sulphurea.
Nymphæa pygmæa.
Nymphæa tuberosa.
Nelumbium luteum.
Nelumbium speciosum.
Nelumbium speciosum roseum.
Water ranunculus.

The soil to grow lilies in is a somewhat difficult subject for an amateur to inform any person on intelligently, because among professional florists there seems to be a great diversity of opinions, for instance, the writer had a friend who was one of the principal gardeners in Kew Gardens, England; his advice was use no manure, but if any, "old as the hills." One of our specialists in his catalogue says use at least one-half well rotted manure, and the third says there is one great point in the successful raising of water lilies, and that is to use at least one-half fresh cow manure. In regard to this last advice, the writer has seen many collections of water lilies, but none that grew so luxuriantly as this. In a few words, the sum and substance of the matter is this, that water lilies will stand a great deal of abuse and still do well, because each one seems to be growing his lilies in his own method.

I have done very well by using one-half good rich strong earth, one-half rotted cow manure and about one pound bone meal to the wheelbarrowful, this seems to grow any aquatic except the lotus. This year I have failed with my lotus, so shall not pretend to give advice as to its culture, but I am satisfied my trouble was by adding too much clay in my mixture, which I did as directed. All the tender varieties I have given the list of are profuse bloomers except *N. Zanzibarensis* (the true purple). It blooms well but not as freely as *N. Zanzibarensis azurea*.

Of the hardy kinds nothing blooms more freely than *N. chromatella Marliacea*, in fact all the varieties I have named bloom freely except *N. odorata*, the common white lily; whether my roots are not what they ought to be or what is the matter I can not say, anyhow they are very shy bloomers and not worth room in the pond.

My boxes for holding the soil the lilies are planted in are principally one foot deep and two feet square, which is I believe a good size, but I put one *N. dentata* and one *N. Devoniensis* in a box one foot deep and four feet square and I got larger and more blooms.

In the winter time I simply leave the boxes with the hardy roots in in the pond and cover the pond over with boards and straw on the top of them and then cover the whole thing with pine boughs, which avoids the unsightly appearance the straw would make.

The tender varieties are treated differently when fall comes, take the tubers (they look like a hickory nut) that are found clinging to the roots of *N. Devoniensis*, *N. dentata* and *N. Zanzibarensis* and put them in sand and keep them not under 60° in water; then start the plants in the greenhouse about February or March. The other tender varieties I raise from seed. One or two dozen gold fish and some common sun fish in the pond will keep down green scum and mosquitoes. E. M.

Beaver Falls, Pa.

KEEPING HARDY POND LILIES OVER WINTER.—L. W. E., New Freedom, Pa., asks how to keep *Nymphæa odorata* over winter, but forgets to tell us whether it has been grown in a tub or planted out in a pond. If in a tub, pour the water off and take the tub with the contents undisturbed into a cool cellar. The lily is perfectly hardy under water providing ice doesn't form deep enough to reach the crowns.

Trees and Shrubs.

MAGNOLIA UMBRELLA.

I mail you to-day a seed vessel of the *Magnolia umbrella* that grows here in the coves of the mountains. [We received it in good condition. These cone-like fruits when ripe, and their coral berry-like seeds handing from them by extensile threads are very beautiful and interesting, and a feature of the magnolias better known in the South than in the North.—ED.] I have a beautiful tree of it in my yard, that was transplanted by me some 15 years ago from the woods. It changes appearance under cultivation very much. The leaves are no longer so very large, but large enough, the same applies to the blossoms. But I have very many more leaves and blossoms on my tree than you see on them in their wild state, these from being crowded and shaded the leaves are at the ends of a few branches, immense leaves surrounding one very large blossom; now on my tree, which branches freely close to the ground there are a great many branches and all are leafy and most of them with a blossom. The "cucumber" or fruit is very pretty when it first opens, its seeds look like coral and each one is suspended by a fine thread. E. O. N.

Tracy City, Tenn.

TREES AND SHRUBS.

Except in rather mild localities and sheltered parts it may be well to stop planting evergreens as pines, firs, spruces, arbor vitæs, rhododendrons and the like now till next spring. But as regards transplanting arbor vitæs, yews, box, or other heavy rooting evergreens from one part of the garden to another, it may be done yet with perfect success providing it is done carefully and they are well sheltered from winds. But go ahead planting deciduous trees and shrubs. And remember that the keynote of success is cut them hard in at planting time and plant firmly.

Go over your young trees and see to it that those that need it are securely staked, and that there is a piece of old rubber hose, burlap, or other soft material between the string and the tree to keep the tie from cutting in to the bark. Examine all old ties and if you find any that are too tight cut them, and replace with a fresh string. And be very particular about your labels on young trees; the labels are generally fastened with wire which cuts into the wood very easily causing much damage.

XANTHOCERAS SORBIFOLIA FROM SEED. (This is the beautiful hardy little tree illustrated in GARDENING May 15, 1894) J. J. D., Millbrook, N. Y., writes: "Of the dozen seeds you kindly sent me last year, six were planted at once in the greenhouse, and they all rotted. I planted the other six in a box of dry sand, burying it below frost line, and took them up in April and found them healthy. Then I planted them in a frame with some inches of lightened earth. Only one germinated. By August 1 it had grown 16 inches, but has grown none since, and that seems to me early in the season to stop growth. Shall I keep it in the cold frame over winter?"

Yes, winter it in the frame and plant it out in the spring. If the other seeds are not rotten they may germinate next spring. Had you sowed the seeds in a box and plunged this to its brim in a cold frame, keeping them ordinarily moist, and mulching them to prevent the ground drying out too fast, and in winter cover the frame to exclude hard frost, most of them, probably would have germinated in spring.

HARDY SPIRAEAS IN MINNESOTA.

G. P. J., Red Wing, asks: "What other spiræas would thrive under the same conditions as the *Van Houttei*, bearing as that does Minnesota's winter's cold and summer's dryness?"

Besides *S. Van Houttei*, *S. sorbifolia*, *S. callosa*, *S. crataegifolia*, *S. Douglasi*, *S. opulifolia aurea*, *S. obovata*, *S. Billardii* and *S. hypericifolia* will all do well at Red Wing. SAMUEL B. GREEN.

Experiment Station, University of Minnesota.

AMPELOPSIS VEITCHII, PINE BORERS, WISTARIA, ETC.—In answer to Mrs. A. M. D., Cincinnati: The spray of vine sent is not *Ampelopsis Veitchii* at all.

Send us specimens of the pine tree borer and its work that we may submit it for accurate investigation. Many insects prey upon pine trees, the larvæ of the timber-borer, *Monochammus confusor* being one of the worst.

Yes, both wistaria and woodbine will grow well and bloom abundantly on the north side of your house; in fact woodbine enjoys a slight shade.

The Flower Garden.

THE FLOWER GARDEN.

It is now the 9th of October, but we have had no frost at Dosoris yet. The grass on the lawns is very thick and green the trees are holding their leaves pretty well, and the garden is gay with many flowers. In a sheltered nook the mountain fleece is a snowbank of fragrance, Maximilian's sunflower, a most beautiful perennial species, is in its prime, and a July sowing of the miniature (*cucumeritolius*) sunflower is giving us many flowers. The tall lilac colored *Aster Tartaricus* is in fine form, and Pitcher's salvia is as blue as a delphinium. A second crop of snap dragons is quite full, Chinese pinks, single and double have lots of bloom, and so have perennial gaillardias. The Japanese toad lily (Tricyrtis) is full of its dotted purplish flowers, and there is a goodly array of second crop larkspur, rudbeckias, and some other things, and Siebold's sedum is beginning to open its drooping heads.

Of annuals there is considerable glory yet: Zinnias, marigolds, gaillardias, late sown coreopsis, petunias, celosias, verbenas, balsams, nasturtiums, and some others are gay enough. Scarlet salvia is making a brilliant display, and cosmos is beginning to open. Sweet alyssum and mignonette will last with us even after the frost comes. Single and double dah-

THE NEW HARDY PINK, HER MAJESTY

lias are in bloom, cannas are on the wane but still a fine show, Cape plumbago, blue and white, are mats of bloom, ill-smelling although lantanas are, they are very brilliant in bloom at this time of the year; vincas, white, red eye, and purple are better now than before this, and *Asclepias nivea* is one of our best sources for cut flowers. Tuberous begonias are grand, and Vernon shows how apt it is for outdoor work. The gladioli we planted in July is giving us fine flowers, and *Impatiens Sultani* is a carpet of bloom in partial shade. White datura bushes are drooping with trumpets, affinis tobacco plant scents the atmosphere at night, and the California poppies (*Eschscholtzia*) are ablaze in the borders where they have naturalized themselves. Annual and perennial morning glories brighten our forenoons, and the moonflower is abundant at night. The white form of *Solanum jasminoides* is dripping with its elegant bunches of white blossoms. And the clumps of the yellow flowered *Hibiscus chrysanthus* look like a mass of hardy shrubs in bloom.

But the first frost will destroy all the tender flowers and leaves us dependent on the hardy ones as mignonette, alyssum, pansies, early chrysanthemums and the like.

If you haven't yet saved all the seeds you want do so at once.

Get up and save all the tender bulbs as gladioli, tuberoses, begonias, bessera, *Milla biflora*, arums, oxalis, and the like, also your canna and dahlia roots.

Clean up the beds and borders. Don't leave the frost killed plants in them all winter.

October 10. We are now having a severe east rain and wind storm, and which has destroyed everything in the way of outside flowers. But if we get bright weather after this we shall have a good many outdoor blossoms yet, such as cosmos, mountain fleece, gaillardia, pot marigolds, mignonette, and sweet alyssum. It is useless to try to save any of the tender plants as cannas, dahlias, and the like, better cut them over; dig them up and get them stored past, and the ground cleaned.

THE NEW PINK HER MAJESTY.

This is a gem among hardy flowers. The plants are stocky, healthy, and hardy, and the flowers are pure white, fragrant, and produced in great abundance. Everybody who appreciates beautiful flowers in the garden, or cut flowers in the house should grow it. Its large, pure white blossoms coming in at a time when flowers are in much demand must make it the standard florists' pink in its season.

I had a large stock of it last year growing in three places. One lot was in a cold frame covered with sashes, and it came into bloom the middle of May. An outdoor bed on a southern exposure, and without any covering in winter came into bloom with the other hardy pinks as Alba Fimbriata, about the beginning of June. The third belt was planted in a shady place with a very light covering of short horse manure during winter, and it commenced to bloom about the end of June. In this way I was able to cut flowers from this pink for nearly three months. I propagate from cuttings taken in September. If these, as soon as rooted, are planted out they will make nice blooming plants the following spring, and will pay well for the little attention paid to them.

The engraving is a good picture of this pretty pink, and was prepared by Mr. V. Blanc of this city.

C. EISELE.

Philadelphia.

NOTES FROM EGANDALE.

Achillea Ptarmica in its double form, known as *A. grandiflora*, and The Pearl are a perfect sheet of white. They are gems for cutting. All through summer and autumn they are a mine of floral wealth. Planted in full sun, they grow more upright than in partial shade, where they assume the character of a trailer.

Euphorbia corollata, the white spurge, is now found in bloom quite frequently by the roadside in rather dry positions, but brought into the shrubbery border for color effect or in the garden for cutting purposes, it is very effective. Its lasting qualities when cut and the graceful open airiness imparted by its use to any floral decoration, makes it almost indispensable.

Galtonia candicans, generally catalogued as *Hyacinthus candicans*, with its tall spikes of white bell shaped flowers, is now passing out of bloom. It should be planted in groups of three or five in open spaces among the shrubbery. If planted six inches deep, in well drained soil and protected by leaves or litter, it will winter well, otherwise it is safest to take it up in the fall.

Campanula Carpathica in its type, the blue, and its white variety, *alba*, are producing a pleasing carpeting of green foliage a few inches high, out of which spring numerous wiry stems half a foot high, each bearing its blue or white open blossom. For borders or open places in a new shrubbery belt, this plant is indispensable. It will grow in partial shade and is very hardy.

Platycodon grandiflorum is a hardy species closely related to the campanulas and which has reached us under many aliases. By some it is catalogued as *Wahlenbergia* and by others as *Cam-*

panula. The common name is Chinese bell flower, but it is indigenous to Japan as well as China. My plants have been in bloom since June 28, and are full of promise yet. It is always good for a month's continuous bloom. The flowers two and one-half to three inches in diameter at the tips of branches on stems three feet high. The type is blue and there is a variety with white flowers faintly pencilled with blue.

Funkia ovata with spikes of lilac tinted blooms is out of bloom, while *F. subcordata*, the best of the genus, is throwing up its scapes of sweet scented white flowers. This is the white plantain day lily so much admired. It should be planted in partial shade, or the leaves will get sun burned. In rich soil, if undisturbed, it eventually forms a circular cushion of broad overlapping leaves attractive even when not in bloom.

Anthericum Liliago forms a graceful grassy tuft of foliage six inches high, out of which spring numerous stalks bearing small six rayed star shaped flowers. It is a graceful border plant.

Clematis Davidiana is opening its pale blue flowers that are produced in axillary whorls, making them a little awkward for cutting. This belongs to the non-climbing set and is preferable to *C. stans*, which is somewhat similar in habit, and will bloom later. Both are strong growing, reaching a height of four or more feet, and require staking.

Clematis integrifolia, a bush form reaching a height of two feet is still producing a few blooms of its small dark blue recurved flowers. There is a hybrid form of the above called *Durandii*, which departs from the type in having five petals instead of four and is larger and more flat in its form, the flowers reaching three inches in diameter and they are a rich blue color. This plant attracted much attention on the Wooded Island at the World's Fair and is now blooming in my garden. Near these plants are four more hybrids of these plants having only four petals, but they make a decided departure in coloring, there being among them two shades of pink and two of light blue. All the hybrids require some support as they grow three to four feet high.

Hemerocallis Thunbergii is valuable, in that it produces its yellow lily like flowers long after the *H. flava* has departed. It grows about three feet high and seems to be as hardy as any of the genus.

Tunica Saxifraga is happy in producing its numerous small fairy-like flowers of a pinkish white color. It thrives in an open sunny situation and makes an excellent border, as it is dwarf in its habit.

Heuchera sanguinea in a group of a dozen plants will have some blooms nearly all summer. The plant forms a rounded low tuft of verdure, while the deep red campanulate blossoms are produced in loose panicles a foot high. For cutting they have no superior and they last a very long time in water. To increase stock of it I divide the old plants in August. Each part will make a good blooming plant next spring [Easily raised from seed.—Ed.] Although a Mexican plant it is hardy here with slight protection.

Achillea Ægyptica with its silvery foliage is a good border or shrubbery plant where such foliage is wanted. Its rich yellow flowers in densely packed terminal corymbs rise two or more feet.

Silphium laciniatum has tall stalks bearing handsome yellow flower heads and it presents a good appearance now, when placed at the back of the borders or among the shrubs. The plant is indigenous, but improves with cultivation.

Coreopsis lanceolata, when planted in the wild garden and left to the tender mercies of chance, produces larger, but fewer flowers than under cultivation. I am disappointed in this plant. Can it be that I have a poor strain?

Digitalis ambigua is a yellow flowered fox glove of perennial habit from Europe. Scattered among *D. purpurea* it prolongs the flowering period of this group. It grows about three feet and is similar in habit to the common form.

Œnothera Youngii, growing some eighteen inches high, is freely producing its bright yellow flowers. A mass of it on the Wooded Island last summer was pleasing.

Gaillardia aristata grandiflora is a coarse, rank growing perennial. Sprawling in its nature makes it difficult to stake with neatness. The variety *Templeana* is more compact in manner of growth and requires no support. The flower heads of both are similar in size and coloring, some three inches in diameter and of a deep orange yellow with a band of maroon, while the center is a dark brown. They are borne on long stems and last well in a cut state.

One of the blazing stars (*Liatris pycnostachya*) is a rather pleasing plant in a mass, if one does not have to write its specific name very often. Its tall cylindrical spikes of small purple blooms will remain a feature of the border for a long time.

Verbascums: *V. phlomoides* and *V. olympicum* are past. With me, this season, the former was the handsomest plant, one of the latter was over seven and one-half feet high. These biennials are very decorative, but will only thrive when standing in the open and having a plenty of room.

Eryngium giganteum with its steel blue stalks and bluish ovate flower heads has been very fine. There are two forms on the Wooded Island that are finer than this species. One labeled *E. purpureum* has a flower head three-fourths inch diameter of a deep purple and very attractive. Another labeled *E. Americanum* has larger and more finely cut leaves than most of the species.

Belamcanda Chinensis, but better known as *Pardanthus Chinensis*, has proved perfectly hardy here, with ordinary winter protection. Its peculiarly spotted orange colored flowers are produced sparingly on iris-like stalks rising to a height of four feet. They close at night and eventually produce a seed so like a blackberry that they are said to deceive the birds. It is known as the leopard lily, also blackberry lily, and is a very interesting plant.

Echinacea purpurea has been very attractive as a shrubbery plant; it was picturesque in its effect. Its flower heads are terminal, on long stiff stalks some three feet high. The blossoms are three inches in diameter and the petals are reflexed and rose colored with a brownish center an inch in diameter. *E. angustifolia* does not grow as high and has paler colored flowers, and there is a white form.

Callirhoe involucrata is a decumbent poppy mallow that blooms all summer, and is extremely useful in many situations. Planted as an under cover in the shrubbery, or at the outer edge of a raised rockery, it extends its rambling shoots up and through low growing shrubs, and opens its flowers in unexpected places. At the base of my rockery is a handsome specimen of the fern leaved sumach. Above it, among the rocks, is this mallow, which has reached out and appropriated the sumach for its support. Its bright crimson flowers, nearly two inches in diameter, appearing among the lacinated foliage, is novel and pleasing. In the elevated soil of the rockery, subject to frost from the sides, it is apt to perish, but in the shrubbery it is hardy.

Geum coccineum is another constant bloomer suitable for a border plant. The leafage forms a rather tufted mass some eight inches high, producing its terminal flowers on stems about twenty inches long that are more graceful if allowed to bend with their own weight in imitation of a semi-trailer. The flowers on my plants are semi-double, an inch in diameter, bright scarlet with yellow stamens, and although sent out under the above name seems to be allied to *G. Cheloense*.

Dicentra eximia.—Although this species can be classed among the flowers now in bloom, its leaves are its chief charms. They are as finely cut as a fern, and overlapping each other from a mound a foot high of rather a light green and somewhat glaucous hue. For a border they form a minature hedge clothed to the ground. The flower stems arise above the foliage and bear numerous drooping reddish purple flowers, somewhat like the old fashioned bleeding heart, to which it is allied and which gives it the common name of the Alleghany bleeding heart.

Lathyrus latifolius, the perennial pea, can be kept in bloom if not allowed to produce seed. The white form is the handsomest, producing on long stiff stems flowers of the purest white, and of more substance and better keeping qualities than its annual cousin the sweet pea. The vine grows about four feet and looks well if allowed to ramble over a brush support or some low open branched shrub.

Aconitum Napellus, monkshood, with its tall spikes of blue flowers is in its best form, and is more at home in the shadiest part of the shrubbery than almost any species. It grows from five to six feet high, and remains in bloom a long time. Its companion *A. autumnale* is later in its blooming and does not grow as tall. These plants improve with age, and should be kept out of reach of any liability of children getting hold of their roots, as they are a deadly poison. W. C. E.

Illinois.

WILD PLANTS IN BLOOM OCTOBER 3.

Asters and golden rods monopolize the fields and woods at this time, making a fine show. *Cordifolius*, *prenanthoides* and *patens* are still crowded with flowers. Others consist of *surculosus*, a violet purple, one found in wet pine barrens; *lævis*, smooth stemmed and with slender branches bearing blue flowers on their ends, and *concolor*, found in pine barrens and which has purplish blossoms. Besides the golden rods named in previous papers we have *flexicaulis*, a lovely species much like *cæsia*, and perhaps the best of the late blooming ones; and *serotina* and *Canadensis*, both from four to six feet in height.

In waste places the Jerusalem artichoke (*Helianthus tuberosus*) has found a home and makes quite a display with its yellow flowers, so too does *H. doronicoides* in the hedge rows. Near a railroad track here I came on to a clump of *H. mollis*, a western species with hoary leaves and bright golden yellow flowers.

For some time past the morning glory (*Pharbitis Nil*) has been in bloom, and it will keep it up till frost. Its pretty violet blue flowers are seen among tall grass

and low growing shrubs about which its stems twine.

Among shrubs, the groundsel shrub (*Baccharis halimifolia*) is displaying its white pappus on the fertile plants, and is as showy as a shrub in flower. Witch-hazel (*Hamamelis Virginica*) is opening its yellow flowers, and they keep up one after another long after frosty nights come. J. MEEHAN.

Philadelphia.

SPRING FLOWERING BULBS IN THE CHICAGO PARKS.

Quite a feature is made of Dutch bulbs at Lincoln Park, but the display is practically limited to tulips. A few hundred bulbs of daffodils, narcissi, crocuses and snowdrops are grown in clumps in the

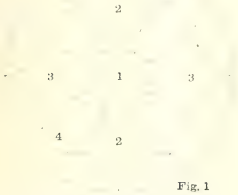

Fig. 1

borders of hardy perennials, but of tulips 30,000 are planted every fall, part of them being bulbs matured, selected and retained from the previous year's growth, and a part of them is bought fresh every year. They are used in ribbons and in beds on the lawns bordering a driveway that skirts the flower gardens near the conservatories. Only five varieties are used, viz., Yellow Prince, La Reine Victoria, white; Rembrandt, crimson-scarlet; Coleur Ponceau, crimson and white, and Cottage Maid, rose and white. These all bear single flowers, bloom together and grow about the same height—Yellow Prince being slightly taller than the others.

In arrangement the first consideration is effectiveness from the driveway. To this end the ribbon borders—consisting of long sinuous lines of tulips outlined by greensward—have a broad central band of one variety edged by narrower bands of another; as three or four rows of Yellow Prince bordered on each side by two rows of La Reine; or Rembrandt edged with Coleur Ponceau; or Cottage Maid and La Reine, etc., etc. In the beds each design shows a distinct field of one variety, while other varieties form a more or less intricate pattern; the intention of all the combinations being the production of bold masses of color. The beds are large, frequently as much as 26 or 27 feet in diameter, but similar designs can be used on a smaller scale for small grounds.

The accompanying diagrams show some of the simpler designs, and to give an idea of the color seen in the park beds take Fig. 1 and let No. 1 stand for Yellow Prince; No. 2 for Rembrandt; No. 3 for La Reine, and No. 4 for Coleur Ponceau. This makes red and white (No. 4) the field color which is, of course, the most prominent, so, for the next bed Mr. Stromback would be likely not only to select a different shape, but also a combination that would give prominence to some other color. Fig. 2 will serve as an example with No. 1 for either Cottage Maid or Coleur Ponceau; No. 2, La Reine, and No. 3, Rembrandt. Again, for variety in both form and color, let Fig. 3 be made up thus: No. 1 Yellow Prince, No. 2 Rembrandt, No. 3 La Reine, and No. 4 Cottage Maid. Of course each design is capable of several color combinations even though the number of varieties to choose from seems small.

The treatment followed at the park is to leave the bulbs as long as possible to ripen in the ground (usually until June 3 or 4); the seed pods are then cut off with a sickle, and the bulbs, with the foliage attached, are taken up and packed in close rows in trenches in the greenhouse benches, and heeled in just as shrubs and trees are temporarily preserved out of doors. There they remain until thoroughly ripe, which condition is indicated by the foliage turning yellow and detaching readily from the bulb. In the latter part of July they are ready to be taken out of the trenches and are then freed from foliage, old roots, bulblets and old skins (the dry outer envelope). The smooth, clean, fresh bulbs are then placed in layers in trays or boxes only three or four inches deep, and the boxes stored in a cool, dry basement. The bulbs are kept dry from the time they are taken from the beds until they are returned to them In removing the bulblets those that are large enough, and firm enough to promise a small flower the coming season are saved and planted in beds by themselves, the rest are thrown away.

The first week in November the tulips are planted six inches deep, and six inches apart both ways, in ground that has been carefully prepared and enriched, if necessary, with a little well rotted manure. After the ground is frozen to a depth of from four to five inches (and *not before*), the beds are covered with about five inches of strawy manure or litter. During and after deep snows and in mild weather the beds are examined and if the ground

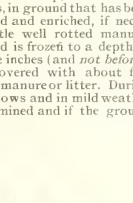

Fig. 2

begins to thaw the covering is drawn aside, and put on again at the approach of colder weather. But cold snaps are carefully watched for while the covering is off. The theory and practice is to keep the ground frozen *above* the bulbs, and to never allow it to freeze *below* them. The covering is permanently removed the latter part of March—a little earlier or later according to the season.

Mr. Stromback does not advocate leaving tulip bulbs in the ground through the summer unless in ground that receives no moisture except that supplied by nature. He finds that the bulbs do not ripen properly in ground that is watered to keep up the growth of summer plants, and when the beds are covered with sod that must be kept green by watering the results prove just as unsatisfactory. That his method of treatment is a success is evidenced by a yearly tulip show that the whole town goes out to see.

Chicago. F. C. SEAVEY.

CROZY CANNA SEEDLINGS.

In GARDENING, of August 15, page 388, in "Cannas at the White House," the writer speaks of seedlings about to be introduced, and says they lack the golden edging so much prized in the Madame Crozy. This has suggested to me reporting to you something of my first experience in raising cannas from seed. Last spring I succeeded in starting about two dozen in a hotbed. After planting them out, a long period of cold and wet destroyed all but half a dozen. Two of them have bloomed and one of them has the same golden edging that the Madame

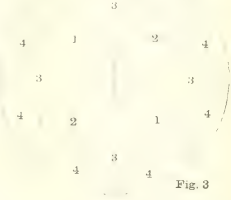

Fig. 3

Crozy has. It has a darker color than Crozy, however, and to my eye is very fine, but whether or not the best judges would pronounce it better in any respect to that popular canna, I cannot tell.

Niagara Falls. H. J. S.

[Madame Crozy canna bears seed in moderate plenty, and a considerable percentage of the seedlings closely resemble the parent; some may differ in the scarlet hue, others in the deepness of the yellow marking, and so on, but altogether, from among the thousands of children born to her during the last three years, we have not seen anything more indispensable than the grand old Madame herself. But some of her progeny are lovely.—ED.]

MY FLOWER GARDEN IN NEBRASKA.

During the summer that is just past we have had the most windy and dry, hot weather we ever had during my residence here of twenty-one years, and I have had geraniums, dahlias, phlox, petunias, pansies, zinnias, pinks, verbenas and carnations continuously in bloom, also gladiolus and lilies in their season, roses almost every month, and now (Sept. 26) have cannas, dahlias and tuberoses now in full bloom, and cosmos budding.

I prepared my beds by removing the earth to the depth of two feet and then filling in with thoroughly rotted garden black soil, sand and well rotted stable manure.

In the lily bed I put at the bottom six inches deep of broken brick, stone and coal ashes, and on top of this six inches of well rotted stable manure, and filled up with good soil mixed with sand. As soon as the dry spell set in I mulched everything with fine fresh cut grass and watered thoroughly every few days

I shall plant out a good number of lilies and other bulbs for next spring and summer flowering. C. W. P.

Shickley, Neb.

ROSES, PERENNIALS, NARCISSUS, GLADIOLUS.

F. N. B., Indiana, asks about:

1. Roses. The young canes in my bed of H. P. roses are five and six feet long, too long to look well. Could they not be kept at a uniform height of three feet, and if so, when should the cutting have been done? What would be the result on the crop of fall roses?

2. Tell us about mountain fleece.

3. When should pots of paper white narcissus be brought up for Christmas bloom?

4. *Eupatorium ageratoides.*—Might you not to have added it to your list of hardy perennials for blooming in September (see page 404)? It has been very beautiful with me for the past ten days, and is indispensable for mixing with the fall flowers in bouquets and vases.

5. Gladioli.—Mine have been glorious in spite of the dry weather, and one dozen of mixed *Childsii* were so full that I want some named ones.

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1. Cut the young shoots back two-thirds their length after they have done blooming in June, this will induce them to throw out two or more middle sized branches to the stem instead of one long shoot, and these will bloom nicely in fall. But further summer pruning of healthy wood is not to be recommended as it induces the lower wood buds that should be reserved for next spring's work, to break into growth. Old, scraggy and decaying or enfeebled wood, however, should be cut out at any time, and so late as this you may shorten the shoots to three feet without danger of starting the lower eyes.

2. It is a hardy herbaceous perennial a native of the Himalayas, of vigorous growth, and it bears a great profusion of deliciously scented fleecy flowers from the end of September through October. Frost destroys the flowers, hence the plant, although most desirable in mild localities, is not fitted for open air culture where frost comes before October. It loves rich moist ground. Severe drouth defoliates it in summer. When used as cut flowers all the large leaves should be picked off, else they will cause the sprays to wilt.

3. It depends altogether on how far advanced they are in the cellar. We take them in about three weeks before cutting time. But if the plants are in a backward condition, and your room is not a brisk warm one, they may need four to five weeks.

4. It is very good. We mentioned only a few plants among the many available ones.

5. That's right. There is no better or more satisfactory plant for an amateur to grow than gladiolus. In buying gladiolus bulbs let us give you a point: Write—"send me big bulbs, by express, I'll pay the charges." Small orders of gladiolus are generally sent by mail. The buyer thinks it is cheaper to get them this way, but you cannot reasonably expect that the florist is going to prepay postage on heavy big bulbs if he can use smallish ones. If you are willing to pay the charges, however, the chances are he will be very glad of the opportunity to send your big bulbs to get rid of them.

FIELD MICE AND BULBS.—P. H. B., Philadelphia, "had a large quantity of lily bulbs which I had planted among my rhododendrons, eaten up by field mice. How can I get ahead of the mice?"

Field mice work under cover only. A light mulch of straw, hay or litter of any sort, a sole of old grass on the ground, or the like is paradise to them. They don't like tree leaves so much. In mulching your rhododendron bed don't use any of these materials, but, instead use a good coating of well wetted, half rotted leaves, and tread it down firm about the plants. Old well-pulverized muck too would be good. But, for the hardier varieties, in the neighborhood of Philadelphia you do not really need a mulching.

GROWING BULBS IN WASHINGTON STATE.—H. S. B., Spokane, asks us: "Do you think it would be possible to grow hyacinths, tulips, and other bulbs here for profit? My soil is a rich, black, sandy loam, irrigated and it grows celery to perfection. If so when should the bulbs be planted?"

If your land and other conditions are favorable we believe you can grow good tulips, lilies, narcissi, alliums, erythroniums, and many miscellaneous bulbs, but we are not so sure about hyacinths. While the soil is of great consideration, the proper manipulation of the crop is of more importance. And before you can make a living at it you must have the countenance of the market, you must make a specialty of some one thing as gladioli, narcissi or lilies and produce a superior and cheap article in large quantity, or go into a general bulb-growing business on a large scale. The grower who is able to supply a long list of articles, is more apt to get orders than one who can furnish only a few and that in limited quantity. Before embarking in the business get some idea of the very low rates growers receive for bulbs, the time, labor, expense, and thought required in raising the crop and marketing it, and then start on a small scale—to raise stock for yourself to begin with. In the way of hardy bulbs as tulips, narcissus, etc., now is the time to begin.

WHEN TO POT CANNAS.—J. M., Pittsburg, Pa., asks: "When in spring should cannas be removed from the place where they are stored in over winter, and potted? Would not potting them in February or March do more to prevent the tubers from rotting than if they were left until May?"

With amateurs it is a question of room. Decidedly potting them would help to save them, but those who have windows only can hardly afford the space for many cannas. Pack them close, one deep and heads up in boxes partly filled with ordinarily moist earth, and place these in an equable cellar of 45° or thereabout, and preserve them from drip, or a warm atmosphere, and they should live well in the cellar till March. But keep looking at them now and again in winter.

Roses.

ROSES, CANNAS AND CARYOPTERIS IN OCTOBER.

How glorious is this October weather! Some of the roses in the field are now giving their finest blooms. The Polyantha Clothilde Soupert is a mass of flowers, larger and richer in color than at any other season of the year. Polyantha rose Mignonette is now throwing up immense clusters of its lovely little pink blossoms. Augusta Victoria, the hybrid tea, seems to be as much at home outdoors as under glass, it is one of the finest white roses we have, and very free bloomer.

CANNAS outdoors are still beautiful. Queen Charlotte is a mass of crimson and gold. Golden Star is also fine, it will require heavy feeding to make this variety run over three feet high. I raised this variety last year from Star of '91 seed. The French raised cannas will have to take a back seat after our new American varieties are introduced. I have now on one greenhouse bench a greater variety of color and form in cannas than can be found in all the European varieties combined. From a batch of Queen Charlotte seedlings alone I can make up a better collection than Crozy sent out last year in his 20 varieties for '94. [Bravo, America!—ED.] I have at last the pure yellow wanted. This one is of most healthy growth and a very free bloomer. It opened its flowers here outside during our coldest night in September when the temperature fell to 33° in the morning. I cut the bloom heads off and divided the plant; the flowers kept fresh in water for nearly a week. I have also other shades that are charming.

CARYOPTERIS MASTACANTHUS.—This is the finest blooming shrub-like hardy plant we have in bloom out of doors just now. It is one mass of rich blue flowers, and has been in blossom for a month. The heat and drouth of last summer had no apparent evil effect on it, for its roots run deep. ANTOINE WINTZER.

West Grove, Pa., Oct. 7, '94.

FALL BLOOMING HARDY ROSES.

We would name the following as among the best hardy roses for fall blooming:

M. P. Wilder, cherry carmine.
Pierre Notting, deep crimson.
John Hopper, bright rose.
Margaret Dickson, white with pale flesh center.
Mme. Georges Bruant, white.
Prince Camille, velvety crimson.
Paul Neyron, deep rose.
Mrs. John Laing, soft pink.
Marguerite de St. Amande, bright rose.
Francois Michelon, deep rose.
Earl of Dufferin, velvety crimson.
Anne de Diesbach, lovely carmine.

ELLWANGER & BARRY.

Rochester, N. Y., September 1894.

FALL-BLOOMING HARDY ROSES.—The varieties of hardy roses that have shown the most bloom in fall on our grounds for the past few years would be about like this: Mrs. John Laing, soft pink; Mme. G. Bruant, white; General Washington, red, shaded crimson, Coquette des Alpes, white tinged with blush; La France, silvery-rose; Marshall P. Wilder, cherry-carmine; Paul Neyron, deep rose; Coquette des Blanches, white; Ulrich Brunner, cherry-red; Eugene Furst, velvety crimson; Mme. Masson, reddish crimson; and Clothilde Soupert, pearly white with rosy center. Perhaps this last named one ought not to be classed as hardy, but it has proved perfectly hardy with us for the past two years. This is from our experience with the above roses as one and two year old plants in nursery rows.

STORRS & HARRISON.

Painesville, Ohio.

ROSA WICHURAIANA TO COVER A GRAVE.

R., N. J. asks: Would you recommend the trailing Wichuraiana rose for planting on a grave? I want it to cover the top of the mound entirely. The soil is a light mixture of sand and clay, and is well drained. If you think the plant may be used in this situation how should the soil be treated, when and how should the plants be set out, and how far apart, the idea being to form a mat of foliage.

If to be planted and let alone, we should

THE LEAVES OF TEN VARIETIES OF CROTONS

say no; but if to be attended to, yes. Why? because it spreads so much. Than this Japanese trailing rose there is no more beautiful living green carpet that we know of. Its habit is to hug close to the ground and become a dense mat; its leaves are small, very numerous, deep glossy green, looking as if they were evergreen; about the end of June or first of July it becomes a sheet of panicles of little white single roses, which later in the season are succeeded by bright red hips. It loves good ground, moisture in summer and a little shade, then spreading flat to the ground it will throw out shoots 20 feet long in a year. At the same time if the ground is good and not too dry, or the exposure very sunny, and two or three times a year the wandering shoots are cut in, it would answer admirably. Mounds on graves are still retained in old cemeteries, but in modern cemeteries the graves are finished off on the ground level. In using this rose it would show to better advantage on the mound than on the level. We would set one or two plants in the level ground at the foot of the grave and lead the shoots straight up over the mound to the head; and at the head of the grave, on the level, we would plant another one or two plants and lead their shoots down over the mound to the foot of the grave. In this way we would get a thick covering in a year. And every shoot that would spread out in any other direction than over the mound should be cut off; this being attended to three or four times during the summer to have it neat. If the soil is shallow or poor remove a goodly quantity of it at each end of the grave and replace it with good rich loam leaving it slightly hollow rather than over full. If you plant this fall, do so as soon as possible, and lay an evergreen branch or two over the plants the first winter.

The Greenhouse.

CROTONS.

Among the most showy and easily managed of warm greenhouse plants are the many varieties of crotons now grown in gardens. They are evergreen shrubs, mostly indigenous to Polynesia, and have strikingly beautiful, brightly colored and varied foliage. The flowers amount to nothing. The plants are readily increased from cuttings, and easily grown, and make very pretty pot plants either for greenhouse decoration, or for room, window box, or flower garden work in summer. The leaves vary greatly in form. Some are long, slender, and arching, others broad and stiff, some are three lobed, others are spiral; some are striped, marbled, suffused or blotched green and yellow, and others have these two colors with crimson and intermediate shadings.

In the greenhouse they like a thin shade, warm quarters, a dewing overhead every fine day, a moderate amount of water at the root, and stopping the shoots now and again to keep the old plants stocky. They can be kept as specimen pot plants for a dozen years in fine form; and in tropical countries they grow to be small trees planted out in the gardens. Many people here use them freely planted out in the garden in summer, they enjoy such a place as tuberous begonias do, good moist ground and faint shade. Our illustration, from the Phipps' Conservatory Guide, Pittsburg, shows a sample of the foliage of ten varieties. They are, 1, Cronstadtii; 2, Hookerianum; 3, roseum pictum; 4 Challenger; 5, Earl of Derby; 6, Queen Victoria; 7, Comte de Gerlache; 8, Mortii; 9, splendidum; 10, [illegible] latum Besides these Mr. Bennett, the superintendent, cultivates between fifty and sixty other varieties

THE GREENHOUSE.

Get everything indoors now. Many greenhouse plants being of evergreen nature may continue to look well outside yet, but if all hardy plants are preparing for rest it is unreasonable to trust tropical and extra-tropical plants to the inclemency of the weather after this.

Arrange the plants so as to give the sunniest places to those coming into bloom, and the shadiest to fine-leaved plants, ferns and palms. Cacti if kept pretty dry overhead will also do well in a shady place. If the greenhouse is crowded cool-loving, small plants like cinerarias, Chinese primroses, geraniums and libonias, may be kept for some time yet in cold frames. These should be well banked around and plenty material should be at hand to cover them with in the event of frosty weather, for a breath of frost is ruinous to cinerarias.

We have to make a good deal of room just now for chrysanthemums. As soon as they are past and cleared out of the houses we can bring in the above named plants from the frames, also carnations and early azaleas, dwarf stevia, etc

Keep the hyacinths or tulips buried out of doors, or in the cellar, to bring them into the greenhouse so soon would be to ruin them. But Roman hyacinths and paper white narcissus can be brought in for early flowering. The earliest freesias may be given a place near the glass in a warm end of the greenhouse; later lots can be kept in a cool greenhouse or in covered frames. Encourage cyclamen in their growth, but keep them in light well ventilated greenhouses. If you notice any

trace of the leaf miner in the foliage of the marguerites pick off the infested leaves and burn them. Bothcut back old plants, also young stock of show pelargoniums, should be kept a little on the dry side at the root and perfectly dry overhead, and some what cool; we don't want them to bloom before next April so there is no need of hurrying their growth and taking up room needed for other plants.

Although we have some fine achimenes in bloom yet, room is so precious that we are cutting them over, also gloxinias, tuberous begonias, gesneras, tydæas, caladiums, and the like that we grow for summer display, and storing them dry under the benches.

Look out for insects. Soon after the plants are housed in comfortable quarters mealy bugs often appear in quantity; in fact many are puzzled to know where they come from. In the case of plants that have been plunged out of doors in summer, for instance poinsettias, bouvardias, cacti, the bugs in summer leave the stem and branches and take shelter about their necks and roots, but as soon as they are transferred to the more genial atmosphere of the greenhouse, they leave their hiding place in the ground, climb up the stems, spin nests for themselves about the axils, buds and points of the plants and multiply exceedingly. They must be brushed off and bruised to death, washed off, or sprayed with kerosene emulsion; on account of their powdery almost water proof coats, however, we find it better to brush and wash them off, using Fir Tree Oil or Little's insecticide in the washing, and afterwards by hosing, syringing and close watching keep them off. But a very badly infested plant unless it be a very valuable one isn't worth cleaning, better dump both plant and bugs into the rot pile than waste time cleaning it or run the risk of contaminating your other flowers.

CHRYSANTHEMUMS.

Do all you can to have flowers and foliage and fine plants. Potted plants should be securely staked and tied, but neatly and unobtrusively. Give the plants plenty of room, if you crowd them the inner and lower body leaves will be destroyed. Never let them wilt for want of water. If they are well rooted and inclined to be pot bound, give them liquid manure now and again. If they are newly potted and inclined to flag a little sprinkle them over head twice a day with water to save them from wilting. If they are still out of doors on the piazza or under a tree be careful to keep them out of the sweep of the wind or the draught; if indoors, although they like to be kept cool and have free ventilation they dislike draughts or hot sunshine. In a cool greenhouse they need no shade, but in a very hot one (there are great differences in greenhouses) a slight shade does them good Attend to disbudding. No matter how closely you disbudded them before, go over them again and remove every flower bud and side shoot you see. Far better have one good flower to a branch, than several poor ones. In disbudding be careful to leave perfectly formed buds only, for one-sided or imperfect give imperfect flowers. It often happens that the biggest, terminal bud is imperfect, if it is remove it and in its place leave a perfect one.

We hear and read a good deal about summer and other early blooming chrysanthemums, but among over 200 varieties grown at Dosoris we have nothing in bloom worth noticing. The few varieties whose flowers are now opening out of doors are too poor in quality to mention. Ten days from now, however, we should have several good kinds in bloom. In the greenhouse, with a little timely manipulation one can have good flowers before this time.

ORCHIDS.

As the colder season approaches it will be best to gather together from among the different genera the plants that are showing forward scapes and place them in a little higher temperature, say 75° by day and 60° at night; this is to hasten their coming and encourage their perfection. After the flowers are cut remove the plants to cooler quarters.

There is always a brisk demand for orchid blossoms at this time of year. During the past few weeks we have had a fine show of *Odontoglossum grande*, a sprinkling of *O. crispum*, *O. Pescatorei* and *O. Harryana*; also *Oncidium varicosum*, *Dendrobium Phalaenopsis* and *D. formosum*; *Cattleya labiata vera*, *Burlingtonia alba* and *Vanda tricolor* and *V. suavis*.

Utica, N. Y. WILLIAM MATHEWS.

ALLAMANDA GRANDIFLORA AND BOUGAINVILLEA GLABRA.

Both have been flowering on a porch here all summer. The pots are plunged to their rims in the border at the foot of the veranda. The bougainvillea is starved in a 9-inch pot, yet it keeps up its flowering.

JAMES MACPHERSON.

Trenton, N. I.

SCALE ON PALMS AND FERNS.—L. F. J., Rochester, writes: I enclose herewith the leaf of a palm with some insects on it; some of my ferns have the same pest on them. It hurts the ferns getting the insects off. What is the best way to kill them?

The insects are common greenhouse plant scale. Tedious although it may seem the only way to remove them without injuring the plants is to rub and wash them off. Use a little soft soap in the water to make it run smooth, also to make the surface distasteful to scales. Weak kerosene emulsion washed over the infested surface will help in destroying them, but be careful in using it. Fir tree oil, an insecticide you can buy at the seed store, if used according to directions accompanying it is good, so is Little's anti-pest. Dip the plants—the tops, not the roots—in water at a temperature of 130°, this will kill a good many of the young scales but not the old ones. The fact is, however, that the only safe way of getting rid of the scale is to brush and wash it off, cutting off the more infested parts. If we injure the leaves in cleaning them, the fault is ours.

THREE PALMS FOR HOUSE DECORATION.—In answer to A. D. M.: We dislike to restrict ourselves to the three "best" because, taste, purpose and conditions may differ. We like *Livistona Chinensis* (*Latania Borbonica*), as a fan palm; and what the florists call *Kentia Belmoreana* and *Areca lutescens* in the way of feather palms. These three are too big for table decoration, however; for this purpose we have the elegant *Cocos Weddeliana* as a feather palm, and *Livistona rotundifolia* as a dwarf fan palm.

WE HAVE BEEN taking GARDENING from the first and are well pleased with it. We find something helpful in every number.

(Rev.) S. H. MCNEEL.

Ontario Canada.

Mushrooms.

STRANGE BEHAVIOR OF A MUSHROOM CROP.

In 1892 I purchased some English spawn and spawned a bed fifteen feet square in a new barn where there was never any mushroom grown, nor had I ever seen any fungus of any kind. The manure was thoroughly fermented, after which a small part, about one-third, of clean loam was added. I was careful not to have it on the dry side. This bed was spawned in September, and in the course of eight or nine days I slightly dampened it and cased it, also covered it with straw. I waited for results and they never came. In October 1893 quite a number of mushrooms came up along one side from under the boards, some of which were nine inches in diameter. This spring, '94, I thought I would haul the bed out, but found that two or three inches of the bottom of the bed was a mass of fine spawn, so I saved it and in May and June I made up some beds and spawned them with this spawn. It took at once and in a short time the beds were a mass of spawn; they were duly cased with about two to two and one-half inches of loam and well beaten down and covered with straw, but as I did not wish them to come up before August or September I did not water any after casing them. In July (latter part) I gave them a thorough watering, as I had perceived that pin head mushroom were showing up by the thousand in every crevice and elsewhere. In a few days there were at least 1000 mushrooms from one-eighth to one-third of an inch in size. Some hens got into the building and scratched among the straw and destroyed all on the surface, so I let the beds go for a week and they got quite dry but a new crop had come up equally as numerous, I dampened the beds but did not give very much water as I was afraid it would hurt them or the spawn; a few developed, but I am certain that there were millions that got flabby and turned brown, which I scraped off. I cleaned all I could see but to tell the truth I did not get one-third of them out, as when I would examine any portion of the casing it was studded with them in clusters of fifteen or twenty to bunches of a diameter of one foot and the thickness of the casing or more, as they would heave up in some bunches several inches above the level of casing. In these bunches it would be hard to tell how many there were as they were about one-eighth of an inch in size, looking like a mass of white fish eggs.

After I had got all I could out I gave a watering that sent them up thicker than ever, but only a small part of them developed. The majority remain pinheads while a few get one-half inch in diameter and about an inch high, large enough to show the formation of the caps. The beds have been moist enough I think since the last mentioned watering. If all of them would come to maturity the beds would average twenty pounds of mushrooms to a square foot.

I believe the spawn I saved was virgin spawn, for I was unable to find a single piece of the spawn that I put in that showed a trace of having grown. It was too dry in the beds to start it into growth. The mushrooms are of the brownish variety the same as the English one, and not the white cap and vivid pink gilled ones of the meadow.

For some time past since the fall rains have begun I have been finding quite a number of the meadow mushrooms near

MR HILL'S MUSHROOM BEDS

an old straw pile that has been tramped down among the grass and mixed with cow, horse and hog droppings (by the way I fail to find that hog manure interferes with spawn running). They are snow white capped, with pretty pink gills the same as usually come up in old pasture fields in the fall. I gathered a lot of the spawn the other day and intend planting some beds of it. They are not so heavy as the English variety but are superior in general appearance. What do you think about cultivating them? [Doubtful. If for profit, we would stick to the brick spawn.—ED.] In connection with the beds spawned with the spawn found in the old bed first mentioned there was a very peculiar mushroom coming up in a few of them. It comes up with a very large base and the cap is small at first but soon grows and retains an elongated form, and is of a dark cinnamon color showing white lines as the cap enlarges. They are from four to ten inches in diameter when fully open. The veil is entire and firmly attached to stem (same as *rubescens* as pictured in Robinson's mushroom book) and becomes detached from the cap all around, falling down and around the stem. The stem is of a yellowish white color, inclined to be pithy and hollow. The veil is beautiful in form, dotted over with light brown spots raised considerable above the surface and can be easily detached by the touch or by blowing on them; gills are slightly pink. When broken it has the odor of bitter almonds. I examined the spawn directly underneath it and find it far larger than ordinary spawn. Can you identify it from the above description? [No. Please dry and send us specimens for identification.—ED.]

Ohio. AGARICUS.

GROWING MUSHROOMS.

Some years ago I became interested in mushrooms and started growing them. I have experimented a good deal, and from a close observation of the mushrooms in the fields have learned as much as from books, and practically I have learned more from one failure than from half a dozen chance successes.

I handled the manure for the beds different from other people, the body of the bed is simply a hotbed, but the surface layer four inches deep consists of fresh horse and cow manure mixed with a little earth and sand, and it is in this I place the spawn. I have had mushrooms in six weeks from the time I started the hotbed part, and the beds have lasted five months in bearing. The beds are in tiers in large sheds, and four feet wide by twenty-one feet long, and my average whole season's picking from each bed last year was 100 pounds of mushrooms. To a large extent I use natural spawn.

All the manure I handle fresh. Moisture in the manure is the hardest part to learn. Too much moisture kills the spawn, and not enough delays the crop, killing half of it. For marketing I pack the mushrooms in shallow splint wood baskets holding about 2 pounds each, they are 12x12 inches by 3 inches deep. The mushrooms keep nice and cool in them, and can be safely shipped a considerable distance. I give a printed guarantee of the quality with every basket.

The demand for fresh mushrooms in California is somewhat limited, but in the eastern states where the market is vastly greater it should be a paying investment. Instead of the laborious and expensive system of hand labor for everything and brick buildings, wooden sheds are better, and machinery should be used for manipulating the manure, and all the mushrooms that would not find a ready and profitable market in a fresh state, could be made into catsup or canned or dried for future use.

In an extended trip through the eastern states last summer I visited most of the mushroom growing places of note, and was astonished to find that the growers adhered to the brick structures when wooden buildings properly built are so much better. But mushroom growing is still in its infancy, in a few years we can stop eating the morsels of leather marked "champignons" imported from France, and satisfy ourselves with the home grown product. C. L. HILL.

San Francisco.

MAGGOTS IN THE MANURE.—A. Y., Philadelphia, writes: I have a load of fresh horse manure in my cellar all ready worked and fit for making into a bed, but I find there are lots of small white maggots in it. Will they injure the crop or what shall I do to kill them?

We don't know what the maggots are. We would pitch out the manure and start afresh with clean manure. Mushrooms are too fickle a crop to run any risks with. Any attempt now to kill the maggots might destroy the worth of the manure. If you had observed maggots in the manure while it was fresh, you might, by having the manure moist and letting it get pretty hot, say 130° to 135°, kill them. But much care is needed to prevent the manure from "burning" when it gets so hot as that, for "fire-fanged" or "burned" manure is of very little use for mushrooms.

GARDENING

WILLIAM FALCONER, Editor.

PUBLISHED THE 1ST AND 15TH OF EACH MONTH
— BY —
THE GARDENING COMPANY,
Monon Building, CHICAGO.

Subscription Price $1 00 a Year—24 Numbers. Advertising rates on application.

Entered at Chicago postoffice as second-class matter.

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All communications relating to subscriptions, advertisements and other business matters should be addressed to The Gardening Company, Monon Building, Chicago; and all matter pertaining to the editorial department of the paper should be addressed to the Editor of GARDENING, Glen Cove, N. Y.

GARDENING is gotten up for its readers and in their interest, and it behooves you, one and all, to make it interesting. If it does not, earth, suit your case please write and tell us what you want. It is our desire to help you.

ASK ANY QUESTIONS you please about plants, flowers, fruits, vegetables or other practical gardening matters. We will take pleasure in answering them.

SEND US NOTES of your experience in gardening in any line, tell us of your successes that others may be enlightened and encouraged, and of your failures, perhaps we can help you.

SEND US PHOTOGRAPHS OR SKETCHES of your flowers, gardens, greenhouses, fruits, vegetables, or horticultural appliances that we may have them engraved for GARDENING.

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SWEET PEAS—A SIX-FLOWERED SPRAY.

I beg to submit herewith the latest result of my efforts in sweet pea culture, being a stem of Eckford's Splendour with six blossoms. Many of my own produce stems with clusters of four, but this, it seems to me, out-Eckford's Eckford. I presume it is only a sport, but it's just the sport we would like to have Mr. Eckford engage in with practical results. If any of your readers can do better than this we would be pleased to hear from them. F. S.

[The flowers were received as stated, namely, there were six blossoms on one spray.—Ed.]

THE SAN JOSE (CAL.) SCALE has appeared in several places on Long Island, and is causing quite a stir among some of the fruit growers. Prof. Serrine of the Long Island branch of the Geneva Experiment Station is investigating the matter.

THE *American Agriculturist* used to be a monthly journal, but now it has changed to a weekly. Its bright and happy face is and has always been a welcome visitor in our home. It is a carefully edited, well filled, progressive, entertaining and most instructive paper, and we rejoice in its prosperity.

CANNAS AND LILIES.—A lady from Pittsburg, Pa., who was here the other day, expressed herself as being thoroughly satisfied with cannas in beds and masses in the flower garden, also with lilies in rhododendron beds. She grows lots of both and nothing in the garden has given her more pleasure, or less trouble.

"SACALINE" is the common name given to the new forage plant *Polygonum Sachalinense* such a fuss is now being made about. It is the giant of the family. As an agricultural crop we have never tested it, but as a hardy, herbaceous perennial in the garden we grew it as long as eighteen years ago. It is of most vigorous proportions and perfectly hardy.

THE PARK COMMISSIONERS of the city of New York need the services of a first-class landscape gardener, and have invited these professional gentlemen to send in their testimonials so that they (the commissioners) can select a man to suit them. Such a demand is an insult to a noble profession, but it shows the calibre of the politicians at the head of the parks.

THE COMMON "SWALLOW-TAIL" (*Papilio Asterias*) is a very beautiful butterfly, and its larvæ are big, fat fellows, green, and ringed with yellow and black. And, can't they eat parsley! If you touch them they stick out a pair of orange-buff, ill-smelling horns to frighten you away. Hand picking and killing it is the only remedy against the ravages of this voracious caterpillar.

PLANT SOME HARDY ROSES, and do it now. In planting don't stand them straight up, but lean them on their sides a little and all one way; if in a row all straight in the row. Why? Because on the approach of sharp frosty weather you can lay the plants flat on the ground and cover them with a few inches of earth. Common earth is the best kind of winter mulching for roses and it never harbors mice.

TREES IN BLOOM AGAIN.—The summer weather was exceedingly dry and the drouth was not broken till a few weeks ago. A good many trees and shrubs ripened up their wood and the leaves began to fall off. We are now experiencing the effect of the September rains on them, in several cases the buds are bursting into leaf, and on some pear trees, lilacs and mountain ash, there is quite a growth of young foliage and a sprinkling of blossoms.

PLANT SOME BULBS.—When you see the bright and beautiful crocuses, snowdrops, squills, daffodils, hyacinths and tulips in your neighbors' gardens next spring is not the time to set about planting some in your own garden; now is the time. Be it ever so few, try some. If you get them into the ground any time before hard frost comes they will live and do well. Of course the earlier you get them in now the better, especially with crocuses; they should always be planted early. Plant some tulips and daffodils anyway.

THE SHAW BANQUET, ST. LOUIS.—The fifth annual banquet to florists, nurserymen and gardeners provided for in the will of Henry Shaw, the founder of the Missouri Botanical Gardens, will be given at the Mercantile Club of St. Louis, November 5th. These yearly gatherings are happy meetings and bring together noted horticulturists from all over the country who get acquainted with each other and exchange ideas, and thus gardening is broadened, ruts are levelled, and the country improved. It is an impetus too to the progress of the Botanical Garden, for all the guests will surely visit it.

GENISTA CATERPILLARS.—Ever since midsummer our potted plants of genista (*Cytisus racemosus*) have been infested with a caterpillar of a yellowish brown color spotted with white and black, that have preyed upon the leaves. We also find that the wild *Genista tinctoria* is infested with it, but we don't find it on any other plants, not even on *Cytisus Scoparius*, the common broom. Dr. Lintner (to whom we have sent specimens) tells us "They are the larvæ of a Pyralid moth with reddish or ferruginous colored wings named *Mecyrna reversalis* Guenée." By hand picking, or spraying with kerosene emulsion or Paris green in water it is easily held in check.

The Fruit Garden.

CONCORD GRAPES FAILING TO DO WELL.

I have a grape arbor 70 feet long with Concord vines 7 feet apart, planted on one side. The vines are strong, about 15 years old, and cover the arbor thickly. The soil is fairly good, with a little clay about a foot beneath the surface. The vines had been neglected, and when I took possession five years ago I had to cut them back greatly to bring them somewhat into shape. I had no grapes the first year of course; the second year a good many, but all went with the dry rot as all grape vines here did then; third year had fewer grapes, which mostly rotted again; fourth year (last year) I pruned the vine more closely leaving only one to two buds on each shoot. Although I had a pretty fair show of blossoms I got very few and poor bunches. This year I cut off several of the old branches, thinning out the vines and left some strong shoots with four or five buds. Had a fair show of blossoms, but only few scattered bunches set with a few scattered berries on them. Now when other grape vines about the country are full I have nothing worth gathering. Can you tell me the cause and remedy? P. D. L.

Plainfield, N. J.

I confess to being somewhat puzzled over your failure to raise Concord grapes in abundance and under almost any of the ordinary systems of pruning and training. I have none on arbors but my near neighbors have, and they seem to thrive and bear immense crops. I have one row of vines 150 feet long, about equal number of Hartford and Concord; the vines are trained to stakes and the main stems are from three to four feet high. In pruning, all the previous season's canes are cut back to three or four buds of the base; the new growth from

these bearing fruit is allowed to fall over like the ribs of an umbrella, all the bunches being completely sheltered from the direct rays of the sun in summer. This row of vines has been pruned in the same way for the past twenty years and has never failed during the time to produce a bountiful crop of excellent fruit, one season I saw a little black rot on one of the Concords only. Of course I have Concords and many other varieties trained on trellises and my only severe losses are due to the cultivation of varieties not adapted to my soil and climate. It is just possible that the rose bugs attack the blossoms of your grapes and this prevents the setting of the fruit. I cannot see that there is any fault in your mode of pruning and unless rose bugs and rot, or some other disease interferes I am at a loss to account for your failure. A. S. FULLER.

Ridgewood, N. J.

THE COLUMBIAN RED RASPBERRY.

A visit to the fruit farm of Mr. J. T. Thompson at Oneida, during the past season afforded us an opportunity to note the characteristics of the Columbian red raspberry, mentioned in GARDENING page 347. It is a great bearer and although this year is its first appearance in our vicinity, it has become a favorite by reason of its fine flavor, large size and nontendency to shrink or fall to pieces in the process of canning. This season has been exceptionally dry but the Columbian has been shipped long distances and received in excellent condition, proving it to be a fine berry for shipping or market purposes. The fruit ripens early and continues till late in bearing. Unlike most berries of this class, instead of suckering it propagates from the tips the same as the black raspberry. It is a vigorous grower and hardy enough to stand our winters uninjured. W. S. F.

Camden, N. Y.

FIG TREES IN WINTER.—G. J. P., Salt Lake City, writes:—"I have a little fig tree and am wondering how I can get it through the winter. How much cold will it stand? It usually gets to zero here in winter and remains cold for a few days, but rarely below that, although we have a good deal of cold and snowy weather."

Before hard frost sets in lay your fig tree flat on the ground, and pile some eight or nine inches deep of earth on top of its roots and branches, as if you were protecting grape vines or raspberry canes, and leave it undisturbed till the winter is over. The fig tree will survive all right. And you can protect it in this way even till it is twenty years old. How much frost it will stand with impunity depends on many circumstances, for instance 20° of frost at New Years might not hurt it, but 10° of frost the first of April might kill it. Frost doesn't do it any good.

The Vegetable Garden.

VEGETABLE GARDEN QUESTIONS.

1. GREENHOUSE CROPS IN SUMMER.—What can be profitably grown during the summer in 3,000 square feet of glass built for forcing lettuces and radishes in winter? I have some chrysanthemums on the benches this summer, but could never find a market for all I could raise in the amount of glass I have.

2. PACKING LETTUCES IN WINTER.—Can you inform me of the best way to pack lettuce for shipment? I desire the lettuce to carry well and be fresh and attractive in appearance when it reaches the retailer.

3. SPINACH AS A GREENHOUSE CROP.—Is spinach ever grown under glass? If so how far apart are the rows and how far apart are the plants in the rows, also what price per pound should spinach bring to make it as profitable as Grand Rapids lettuce at 5 cents per head.

4. GREENHOUSE TOMATOES.—I could make it very profitable in this market if I could ripen tomatoes a month in advance of the earliest grown out of doors. I tried to grow an extra early crop this year by setting the plants the last of April or first of May upon the benches where lettuce had been grown during the winter. The experiment was not a success. The soil consisted of one third or more well rotted cow manure, which gave me tomato plants six and eight feet in height with little fruit. Would growing the plants in pots filled with such soil help the matter any?

5. CAN ENGLISH FRAME CUCUMBERS be grown in the greenhouse during the summer? I would care only for the pleasure of seeing a three feet cucumber grow, with no thoughts of profit. W. G. B.

Gouverneur, N. Y.

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1. Market gardeners here about leave them empty over summer. Probably you don't get outdoor cauliflower before June, cucumbers before the fourth of July, snap beans before the 20th of June, or tomatoes before the middle or 20th of July, up till those times you can get all of them from the greenhouse. Between the middle of July and the first of September is the period when there is no money in the greenhouse, when we can grow things better out of doors than inside. Out of door cucumbers become unhealthy in September, and tomatoes begin to get watery, but in the greenhouse we can have them in prime condition from that time on. Out of door musk melons are sometimes good, and sometimes bad, and often are a very unsatisfactory crop, but the high flavored hothouse melons of England, although useless outside, thrive admirably in our greenhouses in summer; they need care, however. The fruits command a high price and are only fitted for a select market. Some may advise you to grow hothouse grapes in your houses in summer, but don't do it, don't introduce anything that will shade, crowd or interfere with your vegetables before the middle of June or after the middle of September. Outdoor lettuces give out in October. Don't you think there is more money in a crop of greenhouse lettuces marketed about the end of October than in chrysanthemums in November? We do.

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2 and 3. Lettuce should be packed in barrels; the heads averaging about six to eight dozen to a barrel are generally the most salable size. Have some soft material (a little soft hay will do) on the bottom of the barrel, then a layer of newspaper, pack the heads in close with stalks upwards and so on till the barrel is full. We think washing the lettuce and not leaving any dirt on the stalks keeps it in better shape, and makes the lettuce look nice and bright on opening the barrels. Cover the barrel with the head or canvass cover, and mark the number of dozen on each barrel. Even dozens are generally the best.

In reference to spinach, our market for it is generally very good between Christmas and March, unless it is possible that Norfolk spinach should be in market, as it generally is, about that time, but of course this will depend entirely upon the weather there. If the stock there should be cut off by frost, then the hothouse spinach would meet a good market and bring extra prices for the grower, but should it meet a market when spinach is plentiful from Norfolk it probably will sell at about $1.50 per barrel. However if the grower can see any margin at this price to ship to our market, with the general possibility of securing more, we think it will be safe to risk growing it.

ARCHIBALD & CO.,

Commission Merchants, 100 Murray street, New York.

Lots of spinach is grown under glass in winter but not for market. Our gardeners flood the market with the outdoor crop up into December, and except in very hard weather Virginia ships it north in immense quantity. Lettuces pay better. We sow spinach in rows about ten inches apart, moderately thick, and after the plants are in fair leaf thin to one and one-half to two inches apart, using the thinnings for greens.

4. Sow in January or first of February and grow the plants in pots, giving them lots of room and light, but cramping the roots. Get them to make a shor jointed stocky growth at first, so as to rush them into bloom; hand fertilize the flowers; and as soon as a few bunches of fruit are set to each plant, stop the shoots, and feed the roots with weak manure water. If you plant them out on benches, have very little soil, and make that very firm.

5. With great ease. But you must shade the glass to keep the plants from wilting and scorching, and hose them morning and afternoon to dispel red spider. Cucumbers from sixteen to twenty inches long are very fair; the three feet fruit is something very seldom seen among the good varieties as Telegraph, Sion House, and the like, and you couldn't sell them in the market except as a curiosity.

THE VEGETABLE GARDEN.

It is time to think about pulling our winter roots as turnips, beets, carrots and salsify. Here we leave them in the ground till after a light frost comes, which is usually about the end of the month; further inland, however, and in more rigorous parts it is dangerous to leave them out so long. A little frost while they are still growing won't hurt them, but be very careful never to let frost touch them after them are pulled. When you pull them cut the tops off, but not the roots, and particularly in the case of beets and salsify don't cut the tops off close to the flesh. If you leave them in heaps outside for a while before storing in the cellar, see that they are covered with tops enough to exclude frost and shed rain, but not enough to generate heat. Some salsify and parsnips may be left in the ground over winter if we wish, for late winter or spring use. We leave horse radish and Jerusalem artichokes to the last, often not digging them out before November. As both of them will keep better in the ground than stored in the cellar, we lift what we want for use during winter, and leave the balance in the ground till spring.

See that the potatoes are covered from the light, and keep cool, but not as low as freezing. If the onions get damp or are kept over warm they will sprout, avoid this. A little frost in winter won't materially hurt them.

Break an outside leaf in over the heads of the hearting cauliflowers to save the curds from frost. We lift and store our cabbage in November, but people living in colder parts mustn't wait as long.

Gather your surplus Lima beans if the the frost hasn't already damaged them; the half ripe ones will do for cooking latter on, and the full ripe ones both for cooking and seed.

Attend to the winter spinach and German kale, keep the ground clean about them, and sweeten it by an occasional scarifying with a steel prong hoe.

Clear away all old and waste crops, cart out the manure, and do all you can towards getting the cleaning, manuring and digging or plowing finished in the fall to lighten the work in spring.

VEGETABLE GARDEN NOTES.

BUSH LIMAS.—We have had the Thorburn, Burpee and Henderson bush Limas and consider them all desirable, the last especially for earliness. Dreer's we have long regarded as the best pole Lima and we always plant it for main crop. It is productive, but its tenderness and sweetness are what we prize it for.

BEETS —The yellow turnip beet has our preference for sweetness, though we have some red kinds to enliven the color of the dish.

CABBAGE AND CAULIFLOWER —Savoy cabbages we often find almost as good as cauliflower, and except for early we want no other for boiling. Mr. Thomas Bennett of Trenton, N. J., told me of having admirable success with cauliflower in a garden in which others had failed by watering them freely with soap suds from the weekly wash.

CELERY.—Having regard to flavor we now raise only some of the pink or red celeries.

TAILBY'S HYBRID CUCUMBER we esteem as best of all in table quality. It is large and prolific.

EGG PLANT.—We tried the "Large White" egg plant. It is productive but small, and after two cookings we let all the rest go to waste, because of quality. But we tried another novelty in egg plants which we can heartily recommend. It is the Black Prince, introduced by a European house. The fruit though small is early, abundant and most delicious, and the plant is handsome with its dark stems and leaf veins. We shall want it again.

HEROINE PEA has been very satisfactory through a succession of plantings.

CARMINE RADISH was as early and perhaps of better quality than an extra early fine French forcing sort.

SCORZONERA has nearly all run to seed. Is that usual? [Under ordinary conditions no. If sown before May, however, it has always a lot of "bolting" or flowering plants. No doubt the very dry summer helped to drive the plants into bloom.—ED.] Still it is good on the table

THORBURN LEMON BLUSH TOMATO has been more productive than several red kinds the past dry season on a very heavy soil [Had it a bright red skin instead of a lemon-blush one, this variety as it behaved with us this summer on enriched sandy land, would be a triumph among tomatoes, the fruits were so full, so juicy, and so good.—ED]

TURNIPS —A novelty in garden turnips, the "Smooth White Forcing" from Heinemann, is the best early summer turnip we ever had, tender and sweet; but it should be said that it had the advantage over kinds formerly planted, of being well watered with a hose. The White egg for early winter and Breadstone for late are favorite sorts with us. E. R.

Plainfield, N. J.

HUNGARIAN GRASS AS A FERTILIZER.—I find that Hungarian grass plowed under will modify the effects of a long drouth. Where I have my carnations planted out was sod land plowed over last August, and notwithstanding the severe drouth we have had this ground has been moist all the time. Sow a little Hungarian grass when your peas come off and plow it under later, and watch results next summer.

Long Island. C. H. A.

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Columbia City, Ind.

TO THE EDITOR OF GARDENING.—*Sir*: I wish to write you a word of thanks for the manner in which you have treated my letters of inquiry.

The articles in GARDENING for January 15, 1893, page 140, February 1, 1893, page 155, and October 15, 1893, page 44, as replies to my letters of inquiry, have been of *very much benefit* to me, a benefit which means dollars and cents. I wish to thank you for the above with all my heart. Yours very respectfully,
WM. G. BRAINARD.
Gouverneur, N. Y., Sept. 27, 1894.

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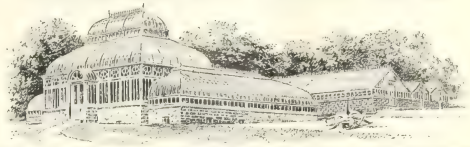

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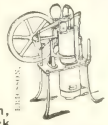

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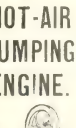

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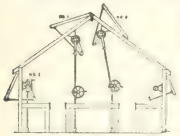

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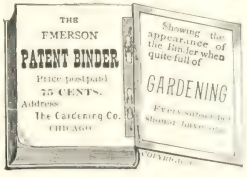

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GARDENING

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HARDY YUCCAS AT EGANDALE ILLINOIS

The Flower Garden.

YUCCAS (*filamentosa*) IN THE GARDEN.

This stately plant is very effective when grouped in an irregular manner on a lawn. The group illustrated in part consists of twelve plants, eight of which bloomed this year. They are planted in holes two feet in diameter, and same in depth, filled with sandy loam, slightly enriched with old manure. Plenty of space between is allowed for the lawn mower. They are perfectly hardy here; each fall they catch the leaves blown by the wind, which seems to be all the protection needed. They are shy bloomers; young strong plants bloom and then for a few years produce suckers but no bloom. I grow these suckers elsewhere and each spring transplant "promising" ones and get from seven to nine bloomers out of the twelve each year. W. C. EGAN.

Highland Park, Ills.

At Dosoris the yuccas bloom nobly year after year. See a picture of some of them in GARDENING, page 20, Oct. 1, '92. We let the plants get as big and multicrowned as they want to. But hardy as they are they like shelter. They dislike wet ground, but dearly love deeply worked, rich, sandy land. By "deeply worked" we don't mean a foot deep, but three or more feet. They ripen lots of seed with us, and these sown in spring in rows in the open garden germinate as readily as do onions. In three years they are flowering plants. As yuccas are so very easily grown and long lived we can recommend them as being one of the best of hardy plants. Our foremost landscape gardeners are using them freely as settings in front of shrubbery planting and to set out among rockwork, and in various other ways where the land is sandy.

DWARF AGERATUM, ALTERNANTHERA, CALCEOLARIAS, ETC.

J. J. O. B., Williamstown, Mass., writes: 1. "The Tom Thumb ageratum I raised from seed last spring proved to be a mixture of many dwarf kinds, some with small whitish flowers, others with coarse foliage, compact, but with scarcely any flowers. The whole lot looked quite shabby all summer, mostly on account of the seed ripening nearly all the time. What about Cope's Pet that I read about recently in GARDENING? I sent to a seedsman for seed of it last spring, but could not obtain it.

2. "I am thinking of planting the same bed (100 feet long by 5 feet wide) next summer with a carpet arrangement made up of dwarf alyssum, golden feather feverfew, blue lobelia and Cope's Pet ageratum. All of these I can raise myself from seed in the hotbed and they won't come expensive.

3. "Could I not get some alternanthera or other dark colored plants to correspond in height with the former?

4. "Please tell me about growing shrubby calceolarias for out of doors. I have a moist shady border in which I think they would do well."

1. Ageratum raised from seed must contain an uneven assortment of plants of uneven quality and variety; at the same time strains are often reduced so

fine that they come fairly true from seed. The only way to be sure of Cope's Pet is to raise the young ones from cuttings or division of the old plants; as it grows and multiplies readily this isn't a very formidable task.

2. Be careful in arranging yellow and blue. In lobelia and ageratum you have two shades of blue; we think the ageratum alone will give you a more pleasing and lasting effect

3. *Alternanthera paronychioides major* and the crimson leaved creeping oxalis called in gardens *O. tropaeoloides* will suit your purpose.

4. The varieties kept by florists and perpetuated from cuttings often do nicely in June and July. Our experience with them from seed has not been satisfactory. From seed sown indoors in March we can get up nice plants to set out late in May, but then the trouble comes, they come uneven in size and blooming and seldom make show enough to justify the care and ground they take. Their flowers are mostly brown or brownish yellow.

CROZY'S AND OTHER NEW CANNAS AT BOSTON.

The grounds of my neighbor Mr. James Farquhar, at Clarendon Hills, are just now specially attractive to admirers of these magnificent plants, for there may be seen the novelties of M. Crozy's establishment for 1894. They mark a distinct advance in these flowers. Of those more distinctively of the Madame Crozy type are Baron M. de Hirsch, Souvenir d' Antoine Crozy, James Farquhar, M. Forgeot, Van den Berg, Jr., Paolo Radaeli. These all have the yellow markings of Mme. Crozy but usually more plainly defined and wider, and a few of them seem to surpass it in brilliancy of color. Paolo Radaeli, a dwarf of two and one-half feet, is of a superb garnet velvet color with wide brilliant yellow edge, and on the whole perhaps the most attractive canna of the collection. Van den Berg, Jr. is distinct in color; a sort of vermilion scarlet suffused and dotted with carmine, with the base and edges of the petals a brilliant shade of yellow, the whole flower has an iridescence similar to that on a pigeon's neck.

In the apricot shades we find Ingegnoli Fratelli and Amiral Avellan, both with dark foliage and large flowers, the latter is likely to prove a formidable rival to that grand sort J. D. Cabos. These will be possibly four to four and one-half feet high. General de Miribel, a dwarf two and one-half feet has large flowers of a light shade of apricot.

In the crimson shades the noticeable ones are John Laing, Madame Ch. Molin, a beautiful flower, plant dwarf, two and one-half feet; and Ami Pichon, also dwarf but with a flower five inches across, deep crimson or vermilion with deeper crimson or carmine stripes and dots. It is a superb flower. Rose Unique and Treye Marie are good flowers of a deep rose shaded slightly with carmine. They are odd, but may be passed where there are so many better. There are no self yellows, but three good ones of the faintly spotted sorts are President Chandon, a brilliant, showy, orange yellow with brick red spots and the objectionable drooping habit of Bouvier; Madame Camille Dugas, a large flower similarly marked but of upright and much better habit, and Madame Montefiore a tall grower of five to five and one-half feet, like in color of flowers to the well known variety Captain P. de Suzzoni, but so far its superior in every particular that the latter's days are numbered when Madame Montefiore can be bought at a reasonable price. The flower spikes are numerous, erect and well furnished wi h long stemmed lovely flowers of immense size. I measured several a few days ago and found them over five inches across, with the broad rounded petal of Madame Crozy. The spots are faint and the general effect at a short distance is that of a clear yellow.

The above are the most prominent of Mr. Farquhar's Crozy collection. He has however several grand seedlings of his own, mostly products of Madame Crozy, one of which, named Victor, is a remarkably brilliant flower surpassed but by few in the collection from M. Crozy. Should any of your readers interested in these plants chance to be in the "Hub" a visit to Mr. Farquhar's grounds will surely repay them. This can be easily done by train from Park Square Station, Boston and Providence R. R., to Clarendon Hills Station, whence a walk of a few minutes brings one to Mr. Farquhar's place.

At Newton Highlands Mr. Arthur H. Fewkes has now in flowerquite a number of seedlings from Mme. Crozy, three of which are of great merit. One named Mrs. Cowing is a beautiful yellow faintly spotted with crimson or terra cotta. It is of dwarf habit, about two and one-half feet, and has fine erect spikes of large flowers well carried on long stems. I have measured several individual flowers of this variety, and found a spread of five and one-half inches with one and one-fourth inch breadth of petal. Its Crozy blood crops out in rather an interesting way, inasmuch as there is a distinctly marked border to the petals of an almost orange tint, while the body of the flower is rather of a lemon shade. The Mass. Horticultural Society gave Mr. Fewkes a silver medal for this fine canna last season. When we include this with Mme. Montefiore and Florence Vaughan, there seems to be but little to be desired in this color. But predictions are risky in these days of horticultural activity and hybridizing skill. Mr. Fewkes' other two seedlings are self crimsons, dwarf growers and with erect spikes of magnificent flowers. One resembles Bouvier in color but is even better, and "holds its head up." The flowers of the other are I think the largest I have met with, spanning sometimes six inches with one and one-half inch petals, color magnificent. The petals lack a little in substance and have not the firmness of Mme. Crozy, but the flower is notwithstanding imposing. It looks a little as though Mme. Crozy might live to see herself outshone by her children, but that is the common fate of mortal and flowers. It would appear that we have about reached the limit of desirable size in cannas though I know the fad of late years has run in that direction. But too often *quality* has suffered in this scramble for quantity. W. H. C.

West Roxbury, Mass.

LILY DISEASE.

This lily disease we now have is a different one from what was introduced with the auratum lily. The auratums used to rot, beginning at the bulb and extending up the stem, and I have seen it a chase between the rot and the flowers whether the rot would get to the flowers before they expanded. This disease seems gone, my auratums do fairly well, and certainly the old blacking rot of the stem does not show. The tiger was the first other lily struck with this auratum rot when it was introduced, and it now is the first to suffer from the Bermuda lily disease, which affects my lilies all over at once. The tigers are wiped out, and the rubrums just about so. I propose to dig out and throw away the rubrum bulbs in a bed fifty by five feet, dug four feet deep, with good drainage, which up to last year was a scene of the utmost luxuriance. Now, will the Bermuda disease follow the example of the auratum one, and die out of itself? W. W.

Hulton, Pa.

LILIUM AURATUM IN POTS AND IN SHADE.

Last year I tried bulbs of *Lilium auratum* in pots covered with ashes under a deep outside cellar stair, and also under a cover of oak leaves in a dry area in front of a basement window. I mulched the pots with grass from the lawn and placed them under some evergreens, and they were fine. In the field they do poorly. They live but they have poor color and poor bloom. I am now quite convinced that what ails them is the lack of sufficient shade. I have a few on a shelf in a ravine densely shaded and hardly a promising place for anything but spring bulbs which are ripening by the time the trees are in full leaf, and in this place auratum does finely, fully as well as in pot culture. In Japan it grows on the wooded hillsides resting on the clay or loam, but under a cover of six to eight inches of leaf mould which the frost never penetrates. C. L. M.

Milwaukee.

WEEDS IN THE LAWN.

I have had difficulty in getting a lawn started about my house at Setauket, L. I In the spring of 1893 I planted the ground with lawn mixture, but the season was dry and it did not do well. Last spring I plowed it all up and following a suggestion in GARDENING I planted a mixture of Kentucky blue grass and Rhode Island bent grass. It came up very well, but another long dry season killed a good deal of it. With the fall rains, however, it has grown considerably and looks as if there was enough to make a good stand were it not for the weeds. I might add that the soil is a sandy loam with a fair top soil, the land having been formerly cultivated for farm crops and in the two plantings mentioned I used commercial fertilizers. During the past summer a vast quantity of rag weed, wild carrot and a weed we call "nigger head," of which I enclose a specimen spray, came up. I kept the tops well cut so that I assume next year the two former will not re-appear. The latter, however, as I recall it in other places is a perennial which grows stronger each year and as the lawn is very full of it I am at a loss what to do I tried cutting it off just under the ground but found it grew up with several new heads in place of the former one. As the lawn is about four acres in extent it would be a great labor to take all these weeds up by the roots, and I do not wish to plow it all up again next spring. Can you advise me what to do?

Wall St., New York. C. B.

The "nigger head" plant sent is rib grass or lance-leaved plantain (*Plantago lanceolata*). Your land must have been rather foul, that is full of the seeds of weeds, to begin with. The seeds are in the ground and only require to be brought near enough to the surface to give them a chance to grow, so after every plowing you would be apt to have a fresh crop of weeds. If the lawn is kept well cut down all summer, annual weeds like rag weed, shepherd's purse and the like won't be as troublesome next year, and while your

close cutting this year may not kill out the wild carrots this winter, continuing the close cutting for another year or so will destroy them. It will be a harder matter to get rid of the rib grass. It, dandelions and crab grass are among the worst lawn weeds we have got. We would recommend that you rake the lawn clean with long-toothed steel rakes, removing sorrel, mouse ear chickweed, creeping vervain or veronica, yarrow, or any other weeds you can, then roll the lawn firmly with a two-horse roller. Refuse tobacco stems from cigar factories if bought by the ton are pretty cheap Get two to three tons of them, open the bales and shake up the stems quite loose, then load them up and cart them on to your lawn, spreading them evenly. This is to act as a mulching over winter. It isn't meant as an insecticide at all nor to kill noxious weeds; but as it has some manurial value, and contains no seeds of any kind, and won't blow away, it makes a desirable mulch.

As soon as the snow leaves the ground, say early in March, on a very dry day, sow some more fine grass seed over the barer parts of your lawn, and without removing the stems, run a light brush harrow over it to settle the seed on the ground, then roll it. Leave the stems on, and if you are troubled with European sparrows add another ton of fresh stems to your mulching to repel the birds. When the grass begins to grow a little the tobacco stems now pretty well rotted should be raked off with wooden-toothed rakes. Never wait for warm weather to sow grass seed, if you get a snow storm after the seed is sown it won't hurt it. If you like white clover in your lawn sow it with the grass seed in spring. The only way to reduce the weeds is to encourage the growth of the short grasses, and mow frequently to behead the weeds.

LILIES TO BLOOM IN AUGUST.—X. Y. Z., W. Va., wishes "to exhibit a small collection of lilies at a fair next August and have selected *auratum*, *A. vittatum*, *speciosum album*, *s. roseum*, *s. rubrum*, *s. Melpomene*, *tigrinum*, *fl. pl.*, *Leichtlinii* and a few others, including one of the new East India yellow lily. I have not yet planted the bulbs and would appreciate some hints of how to proceed so as to reach best results."

You may have difficulty in getting all of these lilies to bloom at the same time and as late as you desire. If you had a good many to choose from, and planted some in a cool, moist, faintly shaded spot your chances for late flowers would be better. Bulbs that have been out of the ground and had a long and decided rest are not to be relied upon so much as ones we have been growing and know all about. They may be impetuous or enervated. It is an easy matter to get all of these lilies into bloom a month earlier than is their usual custom, but to retard them is far more difficult. And in the case of auratums in particular, even under the same cultural conditions they may not all bloom at the same time, you may notice this among those in your garden.

WINTERING TENDER BULBS AND TUBERS.—C. W. P., Nebraska asks: "How to keep (1) gladiolus, (2) tuberoses, (3) cannas, (4) dahlias, bulbs and tubers through the winter without rotting or growing?

(6). Will old bulbs of tuberoses bloom next summer. (6) When is the best time to remove the young shoots. (7). How shall I treat them to make bloom them successfully? And remarks

"GARDENING I consider is the best floral and gardening journal published."

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1. Lift them at once. Cut the stems and leaves off two or three inches from the bulbs, spread them out thin to dry, then clean them, and store them away in bags, or shallow boxes in a cool shed, cellar, or building, in a temperature of about 45°.

2. Crop them over; then lift them and dry them and store them in shallow boxes on a shelf in a warm place, say 60°.

3. How to keep cannas over winter has been answered several times lately.

4. Dahlias, the same as tuberoses, only a little cooler. They keep fine in a cellar, if kept dry.

5. Yes, if strong enough and in good condition.

6. When sorting the bulbs over in winter.

7. Plant early—but not before you would sow Lima beans, in warm good ground. They all don't flower.

THE BELLADONNA AMARYLLIS WON'T BLOOM.—M. N., Wis., writes: "I have treated it as a pot plant for two years. Its leaves are now (October 5) a foot high, and a number of offshoots have made their appearance, but no flowers. It is said to be perfectly hardy. Will it do to plant it out in the open ground with so much new growth?" It is a native of the Cape of Good Hope, and in warm sheltered positions it lives nicely out of doors at Boston, but we do not think it is hardy in Wisconsin. We have not known it to multiply very fast. Under ordinary conditions its leaves grow in spring, and die down in summer; and after a rest in dormant state in late summer the bulbs throw up vigorous scapes terminated with several large, rose-colored flowers.

THE "MEXICAN PRIMROSE" WON'T BLOOM—M. N., Wis., has been trying for three years to get it to bloom; he has tried it as a pot plant, and a basket plant, planted it in the open ground in full sunshine and in partial shade, in rich soil and in poor soil, and watered and fertilized it, but all to no purpose, it hasn't borne more than half a dozen flowers in all that time. We presume the pretty little rose-pink evening primrose (*Œnothera*) is the plant referred to. Keep it cool (but not so low as to let it freeze) and inactive all winter, and only slightly moist, to rest it. In early spring when it starts into fresh growth give it more water and more sunshine. We have seen it in the greatest profusion of bloom, and then it is a lovely little flower.

A NEW CANNA in the way of but "much superior in coloring to Paul Marquant" has been raised from seed by P. L. V., Bayou Goula, La. "This seedling is now (October 10) only 18 inches high and this is its first head of bloom." The flowers being so good to begin with are apt to be always good, but the dwarfness of the plant when it bears its first flowers doesn't always hold good that the variety will continue to be very dwarf. We have had scores of seedlings come into bloom as small as that and grow to be several feet high the next summer.

DESTROYING WEEDS.—The only practical way of getting rid of such persistent weeds as milkweed, calystegia and horsenettle is to cut them down as fast as they spring up. If this is persisted in for two years there is no weed that can stand it.

Hulton, Pa. W. W.

Trees and Shrubs.

LARGE-LEAVED MAGNOLIA AND PAULOWNIA.

A. L. W., Buffalo, N. Y., writes. "I am anxious to plant a *Magnolia macrophylla* and *Paulownia imperialis*, and would like to know if I can reasonably expect them to thrive in our climate. It is very seldom that our temperature reaches ten degrees below zero in winter, but our winds are very strong." Instead of *Magnolia macrophylla* we would suggest that you try the Japanese large-leaved magnolia, namely, *M. hypoleuca*.

Neither the large-leaved magnolia nor the paulownia will thrive in the clay subsoil of Buffalo and vicinity. I believe that in thin, loamy or gravelly soil young plants would ripen the wood sufficiently to escape being killed back, if the roots are mulched as a protection from severe frost until they get down deep enough. Both species do well with proper attention for the first few years in the vicinity of New York. In fact the paulownia is a common street tree in Brooklyn, and trees of large size may be seen occasionally. The minimum winter temperature here is not lower than in New York, but the spring is nearly a month later, and the paulownia would rarely bloom, if ever. All the plants, both of the above magnolia and the paulownia, which I have set out out in the park here have been killed back in winter, because the growth was too rank and sappy. The paulownia roots are often uninjured, and each season they send up one or more succulent shoots, with leaves three or four times the normal size. The general aspect of these annual sprouts is that of an overgrown sunflower rather than of a young tree. As year by year the roots increase in vigor the annual saplings increase in size and softness, and then the first sharp frost of the season suddenly kills both stem and roots. I therefore think that under ordinary conditions of soil and exposure neither species will thrive in Buffalo or its vicinity.

WM. MCMILLAN.

Sup't of Parks, Buffalo, N. Y., October 16, '94.

SHADE TREES FOR THE SOUTH.

U. B. H., Americus, Georgia, "wants to get quite a lot of good sized shade trees shipped out to me this winter." He visited the north last summer, and at Dosoris (we regret he did not make himself known to us) he saw some copper beeches and other trees that pleased him, and a friend "recommended to me as most thrifty and beautiful shade trees the Norway and sugar maples," and advised him to get them from a certain far-north nursery.

There is a big difference between the climatic conditions of New York and southwestern Georgia; New England trees might disappoint you, better take the advice of such eminent veterans in tree planting as James Stewart of the Elmwood Nurseries, Memphis (see what he says in GARDENING, page 40, October 15, '93. As you are a recent subscriber we mail you the issue containing the article), and Prosper J. Berckmans, The Fruitland Nurseries, Augusta, Georgia. Mr Berckmans writes us:

"Norway and sugar maples are the least desirable of the class for the light soils of southwest Georgia. The Norway maple succeeds well in our clay soils, but much better higher up the state. The best of all maples which I would recom-

mend is the silver. Purple-leaved beech is worthless south here, so far as retaining the color of the foliage goes. Early in the spring the color is bright enough but early in May it turns to a dingy green, and furthermore it does not grow well except in rich clay soils. Other good shade trees would be the box elder (*Acer Negundo*), American white ash, the cucumber tree (*Magnolia acuminata*), the paulownia, the soapberry (*Sapindus marginatus*), maidenhair tree (*Ginkgo biloba*), and the Texas umbrella tree (*Melia Azedarach umbraculifera*).

HARDY SHRUBS IN OCTOBER.

The coloring of the Japan maples is very fine this fall. We have a very sturdy variety called *purpureum latifolium*, but on account of the very fine color it assumes in the fall *purpureum autumnale* would describe it better. Add to this its crop of large purple and green seeds which are still hanging on it and giving it a very distinct appearance.

We have in bloom the hardy *Erica tetralix*, white; *E. ciliaris*, pink, and long in bloom; *E. vagans carnea*, light pink; and *Menziesia purpurea*, a gem, it has been in bloom for three months, and it appears to be quite hardy here.

The fertile form of the sea elder or groundsel-tree (*Baccharis halimifolia*) is very conspicuous because of its heavy crop of long, white pappus. It has been full of its white fluff for a month or more and will last the month out.

Hypericum multiflorum has some new flowers again—a very valuable point. Although we have had this valuable shrub for years it is only now that it is beginning to be called for much.

J. R. TRUMPY.

Kissena, L. I., Oct. 24, '94.

ADVICE ABOUT SHRUBS.

W. P. W., Flushing, N. Y., has a place a little less than an acre and there is an irregular belt of shrubs consisting of thirty-four kinds and several plants of a kind planted near the fence. "They have been planted several years and are now too large and close together. What new ones can I add, and which of the old ones would you advise me to remove? How far apart should they be planted? I enclose a sketch showing how they are arranged and the different varieties."

As this is a case that should be seen to be intelligently dealt with, we have advised our correspondent by mail to ask Mr. Trumpy of Kissena, who lives in Flushing, to call and see them. Mr. Trumpy, on the spot, could give him more pointed advice in twenty minutes than we could, without seeing the shrubs, on a ream of paper.

Probably this may be, like most other crowded plantations, not a case of cutting out the larger and more over-crowding plants so much as a rearrangement of the whole plantation. In making plantations of shrubs we should draw a plan and on it indicate the position of every tree and shrub we wish to remain permanently just as we would trees in an orchard; for immediate effect however, we may interplant other shrubs and ornamental plants between the permanent ones, but cut away or dig out these supernumerary bushes just as soon as they touch the permanent ones. Then there are lilies and other bulbous plants and hardy perennials to stop up all temporary gaps.

How far apart to set shrubs is very uncertain because in shrubbery we seldom set many plants of one kind in a row as we would currant bushes, we plant in groups, in clumps, irregularly, often several kinds together, and all for a pleasing effect. Three feet apart may be enough for daphnes and yuccas, four feet for azaleas, five feet for *Deutzia gracilis*, six feet for *Berberis Thunbergii*, seven feet for *Deutzia crenata* and weigelias, eight or nine feet for lilacs and mock oranges, ten to twelve feet for *Pyrus floribunda* and so on. Now everyone of these distances is misleading and apt to do mischief. Most all of us have seen single plants of rhododendrons eight to twelve feet across, but who, in planting a rhododendron bed would ever set the plants eight to twelve feet apart? We wouldn't. We would plant far thicker and later on thin out the plants, or lift and reset every plant in the bed, placing them farther apart than they were before.

THE HYBRID CATALPA.—J. B., Michigan, asks: "Is the hybrid catalpa from Japan a very hardy tree? Some claim that it will stand 40° below zero. Will it grow more compact than the common catalpa?" We presume you mean Teas' hybrid catalpa. If so it is an American tree raised from seed of *C. Kœmpferi*, a Japanese species, supposed to have been fertilized by one of our American kinds. Yes, it is very hardy, and a strong fast growing tree of somewhat compacted proportions. Plants raised from seed often differ considerably from each other.

CREEPING SNOWBERRY (*Chiogenes hispidula*).—I have found it growing in a cranberry marsh under some small spruce trees. The plant formed a thick green mat covering a space 9 feet in diameter. On pulling up a handful of the vines I found a number of small pure white cranberry-like berries. These were full of small seeds all through the pulp, and they had a pronounced flavor of wintergreen; indeed the whole plant had. M. N.

Chippewa Falls, Wis.

Greenhouse and Window.

REX BEGONIAS.

The true Rex begonia is one of the commonest and still one of the best of all begonias. It comes from Assam. But it is not alone in its glory; since it came into cultivation, and especially of recent years, it has given rise to a beautiful and showy race of offspring that have now become very popular.

Everybody loves these begonias. As window or greenhouse plants they are very apt and beautiful, and easy to grow and long lived, and in a faintly shady place in summer they are at home in the flower garden. As basket and bracket plants too they are fine. I find they are especially fitted for house culture and excellent plants for amateurs to grow. They do remarkably well with us in warm shaded greenhouses, in the cool ferneries, and in the ordinary greenhouse without any shading with a temperature of 60°. The compost we grow them in consists of ½ loam, ¼ well rotted manure, ¼ leaf soil, and a little sand mixed with it.

We have used these begonias in large quantity all through the conservatories in Schenley Park, and in beds for outdoor show, and must say they have been very pleasing. The accompanying illustrations (from the Botanical Guide to the Phipps Conservatories in this park) were engraved from photographs taken here of the leaves of some of the finest new varieties of Rex begonias which took the first premium at the World's Fair at Chicago last year. Among them there are some, for instance *albo picta*, *Caroliniæfolia*, *compta* and *smaragdina*, which are distinct from Rex.

FIG. 1. 1, Begonia Rex; 2, Alice White; 3, Anna Dorner; 4, Pauline Rothschild; 5, Argentea Guttata; 6, Mrs. Shepherd; 7, Mme Lionette; 8, Mirabunda; 9, Mme. Leboucq; 10, Caroliniæfolia, a species from Mexico, and Albo-picta.

FIG. 2. 1, Flora Hill; 2, M. Paraert; 3, Louis Closson; 4, Souvenir de Joseph Main; 5, Nickel Plate; 6, Smaragdina; 7, Lady Slade; 8, Clementina; 9, Diadema; 10, Conchæfolia; 11, Feastii; 12, Compta, from Brazil. A. W. BENNETT.

Sup't of Schenley Park, Pittsburg, Pa., October 15, '94.

A PIT TO WINTER PLANTS IN.

I am anxious to store carnations, hollyhocks, geraniums, etc., in a pit this winter. Will you please give me instructions how to make, drain, pack and manage a pit? SUBSCRIBER.

Annapolis, Nova Scotia.

A PIT is a sunk, unheated greenhouse or frame. It may be large or small, and with a path inside or not. The deeper the pit is the warmer it is in cold weather, on the other hand, the damper it is. The situation for the pit should be warm, sheltered from the north and northwest, and if possible facing the south or southeast, and it should be on level or rising ground, and never in a hollow. If it is to be large enough to walk in have it 6½ to 7 feet deep between the bottom and the rafter, and 8 or more feet wide; it should be sunk 5 feet under ground, and 1½ to 2 feet at front to be above sun line, and 3½ to 4 feet at back above ground. The sides should be of plank, with posts 3 feet 2 inches apart, and the rafters 3x4 inches, notched at the ends so as to form braces between the posts, for the pressure of the banks of earth against the plank sides is great. Nail a 1½x2 inch strip along the middle of the rafters to keep the sashes in place. Cover the pit with 3x6 feet sash along the front; this will leave about 3 feet at the back uncovered, cover this with boards rendering them watertight by overlapping, matching, or covering them with "roofing," and arrange them so that the sashes will slip up under them two or three inches, making all watertight and comparatively airtight. The steps to go down into the pit should be at the east end, and covered as one would an outside cellar door. The door should be of boards and only wide enough to let a person enter comfortably. As the sashes are meant to slide down or lift off at will the plants are put in and taken out from above, rendering a large door unnecessary. The path may consist of a plank laid along the middle of the house, or rather a little nearer the back than the middle. The staging should consist of a shelf at front and back, at or a little under ground level for growing plants, and underneath those may be other shelves on which to stand lemon verbenas, fuchsias, and other shrubby and bulbous plants at rest; and on the floor cannas, tuberous begonias, and many roots could be stored. Above the ground outside pile a bank of coal ashes or earth against the pit or set a well trodden bank of tree leaves there, covering it with earth or strawy litter, with a board above all to keep it dry.

As a protection against frost in winter the pit should be covered over with mats and shutters, sedge or straw; and in the

FIG. 1

FIG 2
BEGONIA LEAVES

event of very severe weather one or two kerosene lamps may be lit and set into the pit. But avoid raising the temperature above 40°. Keep the plants a little on the dry side. Never spill an unnecessary drop of water in it. Don't syringe or sprinkle the plants overhead. Don't coddle the plants, but ventilate freely in fine weather.

The drainage should be perfect. Drain as you would a house cellar.

WINDOW PLANTS.—J. A. S., New Castle, Pa., wants to know what plants will grow in an east facing window. Chinese and obconica primroses, cinerarias, oxalis, all manner of bulbous plants like hyacinths, narcissus, tulips, palms, ferns, cacti, ivies and many others. The forenoon sunshine is good for plants, in fact callas, carnations, marguerites, and Zan-

zibar balsam will bloom fairly well in an east window, but of course most free-flowering plants like a south-facing one better. In our east window too plants requiring no direct sunshine as ferns and palms will also flourish if kept back a little from the glass.

CRINUM KIRKII WON'T BLOOM.

M. N., Chippewa Falls, Wis., writes: "I have a *Crinum Kirkii* that has not flowered although I have had it three years. When I got it the bulb was about thirteen inches in circumference; it is now only nine inches in circumference and continually growing smaller, the outside becomes dry and peels off, while the bulb makes a good vigorous leaf growth and there are three offsets of about one and one-half inches in diameter. The bulb was in a 7-inch glazed pot. Can you tell me how to treat it to make it flower?"

I would suppose by wording of inquiry that the crinum has been kept constantly in a pot. This is a thing I never do, neither would I use painted pots. I would suggest that the bulb be allowed a comparative rest, and in early spring plant it in the open ground in full sunshine and in good, well drained soil, and I feel convinced that in a short time this effort of reproduction by bulbs will be in great measure discontinued and blooming will commence. I turn out into the open ground the whole of our collection every spring and have good plants and free blooming ones. J. GURNEY.

Missouri Botanical Garden, St. Louis.

EARLY CHRYSANTHEMUMS.

While a majority of our larg st and most showy chrysanthemums are found among mid-season or late varieties originators are now adding largely to the early forms. These are of especial interest to amateur gardeners, since their flowering season is early enough for them to develop out of doors or without artificial heat. Although during a clear bright autumn we have kept up a bright show of outdoor chrysanthemums until close upon November, with no other protection than a canvas curtain put over them at night, many of the well known show varieties are too late for this. Cultivators are now turning their attention towards producing earlier forms, and some very beautiful varieties are the result.

Miss M. M. Johnson, the variety here illustrated, is a new one, exhibited before a committee of the National Chrysanthemum Society October 20. It is a very shapely Japanese incurved flower of robust habit, a perfect golden yellow, and unusually good for so early. This originated with a western grower, who is also the originator of Mrs. E. G. Hill, a very beautiful pearly pink, extra large and very early; this latter flower was first shown last year, but disseminated this season. Among other new early chrysanthemums are Sunrise, very large, incurved, light terra cotta with buff reverse, the earliest of the reds; Daybreak, an exquisite soft pink, fading to pale lemon in the center; Princeton, bronzy yellow, flowers about eight inches across, and Rosa Kupferle, magenta pink, a large flat flower, in shape resembling Vivian-Morel. When we saw this flower for the first time last year we thought the magenta tinge would be against it, but every lady who saw it fell in love with it at once, and the variety seems likely to become a general favorite. There are several new early whites, among them White Cloud, somewhat in the style of Mrs Langtry; Ella Walz, creamy white, and J. H. Troy, but an early white needs to be very good to displace some of our older favorites such as Ivory or Miss Kate Brown, the latter being one of the very earliest seen in the market.

HOTBED IN WINTER.—"Ignoramus," Dunkirk, N. Y., writes: "I have had a hotbed and cold frame made and would like to know (1) can I grow anything in the hotbed this winter, or not till spring? 2. What should I plant and when?" 1. A hotbed as a hotbed is of no use to you in winter. But you can use it as a cold frame in winter, say for lettuces, parsley or spinach, or to winter pansies, anemones, daisies, polyanthuses, forget-me-nots or the like in for planting out in spring, and when you empty it of its winter crop use it as a hotbed. At Dosoris we treat about a hundred sashes in that way. 2. Don't start a hotbed till you are prepared to take care of it, say about the middle or end of March. We who are accustomed to them may, in the event of open weather, start one in February, but early hotbeds are laborious undertakings. Sow seeds of early cabbage, cauliflower, lettuces, tomatoes, egg plants, and peppers. Also slow growing flower seeds as lobelia, cockscomb, ageratum, vinca and the like. Marigolds, zinnias, stocks and asters do well if not sown till the first of April.

BEGONIA REX.—E. L. H., Brooklyn, sends us a Rex leaf with a rotted spot near the middle of it and decaying parts near the edges. The spot looked as if it might be caused by wet, a leaf or petal from another plant falling and decaying on it, or scalding; scalding, wet or cold might cause the other defects. But we did not get material or information enough to enable us to give a clear opinion. Presuming it might be a fungus blight we submitted it to Dr. Byron D. Halsted for examination. He reports "The begonia leaf bears no fungus that is criminal, and I am not able to find any cause for complaint. Sometimes nematode worms are at the bottom of begonia blights." Rigid cleanliness is to a considerable extent a preventive against these microscopic worms.

A GREENHOUSE IN WINTER.—M. T. T., Geneva, N. Y., asks "What is the most profitable thing to grow in a greenhouse in the winter time?" It is impossible to tell. Ten thousand greenhouse men in the country to-day are asking themselves that very question, and by actual practice trying to solve it. Some are growing roses, others carnations, others miscellaneous plants, grapes, tomatoes, cucumbers, lettuces, cauliflower, radishes, young nursery stock and so on. Some people are making money in the greenhouse business, lots are making a bare living only, and others losing money. A great deal depends upon the man running the greenhouse. But if you take up any special branch of greenhouse work and we can aid you we shall be glad to.

WHAT AILS THE CYCLAMEN?—A. B. O., Ingersoll, Canada, sends us a cyclamen leaf and writes: "The leaves have been turning yellow and curling up, and I can't make out what the trouble is." The sample sent is a well developed, sturdy leaf, but all over the underside it shows traces of thrips. Wash the under sides of the leaves with a sponge and tobacco water; or have a pail or old butter tub filled with tobacco water, and dip the leaves into that but not the roots; or chop up some fresh tobacco stems and place them thickly on the bench the cyclamen are standing on, or fumigate the greenhouse three or four times in close succession, say every second day.

KEEPING SEEDS OVER WINTER.—A Michigan subscriber asks: "How should flower and garden seeds be kept over winter—in tight boxes or bags?" It is immaterial providing they are well ripened and kept perfectly dry. We would not like to keep them in airtight boxes nor in a very high or a very low temperature, anywhere between 30° and 60° is good. Providing seeds are perfectly dry and well ripened a few degrees of frost won't hurt them; you have good evidence of this in corn out in the crib over winter, it is perfectly good for seed in the spring. The same with Lima beans, and with seeds of many other warm country plants.

PLEROMA ELEGANS.—In answer to W. E P., Aurora, Ont. The unhealthy condition of your plant is due to some local cause we have no means of knowing. It is a very easily grown greenhouse plant requiring warmth in winter and a thin shade, and it may be plunged out of doors in summer in such a place as you would set fuchsias or begonias. As a window plant it needs care. Don't give it very much water but never let it get dry. If it continues dropping its leaves, if the plant is big enough head it down to within a few inches of the ground and let it branch out again.

Roses.

POLYANTHA ROSES IN CALIFORNIA.

The Polyantha class of roses is rapidly becoming popular with us. The smaller sorts such as Paquerette, Little Pet and George Pernet make pretty dwarf hedges, being evergreen and almost perpetual bloomers. Nothing can be more appropriate as a surrounding to a plat of stronger growing roses. But the most valuable of the tribe, at least for this locality, are Cecile Brunner and Perle d'Or. These two sorts are almost identical except in the color of the flowers—the former being a La France pink with sometimes a touch of salmon, and the latter orange fading to almost pure white, a good deal in the way of William Allen Richardson. Though often described as dwarfs they are in reality stalwart growers, often in one season making canes the size of one's thumb that rise from the ground to the height of five or six feet. On the tops of the high branches the flowers came in corymbs but on the low and side shoots they come singly on long stems, excellent for cutting, and it is for decorating and the making of set pieces that these flowers are mostly used. They also make up splendidly into boutonnieres, the buds being small but fine both in form and color. For commercial purposes these roses have been grown almost exclusively out of doors up to the present time, but this season many have been put under glass.

From cuttings they grow readily with us in the open field. A florist here put in some three thousand cuttings of Cecile Brunner and something less of Perle d'Or about the first of last December, and the plants are now on an average two feet in height and have been yielding flowers for the last two months in immense quantities.

Clothilde Soupert, the favorite at the east, is of little value here out of doors.

NEW EARLY YELLOW CHRYSANTHEMUM MISS M M JOHNSON

It grows well enough and produces a profusion of buds, but they rarely open and the bud has no beauty. Not one in a hundred will develop into a good open flower. So this sort seems destined to unpopularity with us. A new seedling from Cecile Brunner is just now being watched with a good deal of interest, but it is too soon to pronounce upon its merits. It will take another season to fully test what now appears full of promise. H. G. P.

Fruitvale, California.

ROSES FOR BUFFALO, N. Y.

J. D. W. asks us to name some of the best everblooming roses to plant in a climate like that of Buffalo, N. Y., that will stand the winters without any especial winter protection; and when is it the best time to plant?

As it is now so late in the year you had better wait till spring, and then plant early. The following varieties do very well with us:

Baron de Bonstetten, dark crimson.
Sydonie, rose color.
General Jacqueminot, crimson.
Mme. Trotter, bright red.
La Reine, glossy rose.
Anne de Diesbach, carmine.
Prince Camille de Rohan, deep velvety crimson.
Climbing Victor Verdier, bright rose.
Coquette des Alpes, white, tinged blush.
Perle des Blanches, white.
Magna Charta, pink, tinged carmine.

W. J. PALMER & SON.

Rose Growers, Buffalo.

SELECT ROSES.

In the *Journal of Horticulture* an eminent rosarian gives the following list of hardy hybrid perpetual roses for general cultivation. With the exception of A. K. Williams and maybe one or two others the roses named all do very well in this country.

LIGHT VARIETIES.—Mrs. John Laing, rosy pink; Mme. Gabriel Luizet, light silvery pink; Merveille de Lyon, white; Baroness Rothschild, light pink; Marie Finger, light salmon rose; Pride of Waltham, light salmon pink, shaded violet; and Jeannie Dickson, soft silvery rose.

MEDIUM REDS.—Ulrich Brunner, cherry red; Etienne Levet, carmine rose; Francois Michelon, deep rose reverse silvery; Dupuy Jamain, bright cerise; Marquise de Castellane, clear cherry rose; Camille Bernardin, light crimson, Comtesse d'Oxford, carmine violet; Heinrich Schultheis, pinkish rose; and Alphonse Soupert, bright rose.

REDS.—A. K. Williams, bright carmine red; Marie Baumann, soft carmine red; Alfred Colomb, bright carmine red; General Jacqueminot, bright scarlet crimson; Ferdinand de Lesseps, shaded crimson; Duke of Edinburgh, scarlet crimson; E. Y. Teas, bright red; Dr. Andry, bright crimson; Fisher Holmes, shaded crimson scarlet; Victor Hugo, dazzling crimson, shaded; Senateur Vaisse, bright crimson; Duke of Fife, bright crimson; and Earl of Pembroke, velvety crimson edged with bright red.

DARK VARIETIES.—Charles Lefebvre, purplish crimson; Louis Van Houtte, deep crimson, shaded maroon; Earl of Dufferin, dark crimson, shaded maroon [a splendid rose here, everybody should grow it.—ED.]; Prince Arthur, bright crimson; Duke of Wellington, bright shaded crimson; Prince Camille de Rohan, crimson maroon; Sir Rowland Hill, deep velvety plum; and Duke of Connaught, deep velvety crimson [hasn't proved first-rate with us.—ED.].

THE BEST EXHIBITION HARDY ROSES.—The same author gives a list of 73 roses, which were the best and most frequently shown at the various exhibitions held in Great Britain this year. They are given in their order of merit:

Mrs. John Laing [grand in this country too.—ED.], Mme. Gabriel Luizet, La France (H. T.), Ulrich Brunner, A. K. Williams [unsatisfactory with us.—ED.], Marie Baumann, Her Majesty, Margaret Dickson, Alfred Colomb, Charles Lefebvre, Merveille de Lyon, Gustave Piganeau, Etienne Levet, Baroness Rothschild, Suzanne M. Rodocanachi, Francois Michelon, Dupuy Jamain, Louis Van Houtte, Earl of Dufferin, Marquise de Castellane, Prince Arthur, General Jacqueminot, Ferdinand de Lesseps, Horace Vernet, Duke of Wellington, Camille Bernardin, Comtesse d'Oxford, Lady Mary Fitzwilliam (H. T.), Duke of Edinburgh, E. Y. Teas, Marie Verdier, Dr. Andry, Le Havre, Marie Finger, Heinrich Schultheis, Fisher Holmes, Caroline Testout (H. T.), Duke of Teck, Captain Christy (H. T.), Prince Camille de Rohan, Marie Rady, Abel Carriere, Victor Hugo, Beauty of Waltham, Pride of Waltham, Jeannie Dickson, Xavier Olibo, Star of Waltham, Mme. V. Verdier, Reynolds Hole, Duchess of Bedford, Mme. Eugene Verdier, Duchesse de Vallombrosa, Countess of Rosebery, Violet Bouyer, Comte Raimbaud, Marchioness of Londonderry, Charles Darwin, Sir Rowland Hill, Duchesse de Morny, Mme. Isaac Pereire (B.), Marchioness of Dufferin, Senateur Vaisse, Vicomtesse Folkestone (H. T.), Monsieur Noman, Auguste Rigotard, Marguerite de St. Amand, Victor Verdier, Magna Charta, Alphonse Soupert, Dr. Sewell, Duke of Fife and Mrs. Paul.

THE WASHINGTON ROSES.—The white Washington (Tea) and the red Washington roses are grand with me now, I have rows of both of them just a mass of immense blooms. J. STEWART.

Memphis, Oct. 22, '94.

Insect Pests.

THE INDIAN CETONIA.

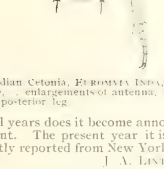
We have a number of young pear trees on our place one of which is apparently dying. The bugs, which I send you samples of seem only to attack this one tree and do not trouble any other. I have tried various remedies, such as spraying with slugshot, etc., with no effect. I have also picked them off each day and destroyed them, but shortly after the tree is as full as ever. They seem to pierce the bark and feed on the sap. E. B.

White Plains, N. Y.

The insect occuring on a pear tree, as above stated is a beetle belonging to the Scarabæidæ, bearing the name of *Euromyria Inda*. For want of a better common name, it is known in entomological writings, as "the Indian Cetonia"—India having been given as its habitat by Linnæus when he described it more than a century ago, and "Cetonia," referring to the genus *Cetonia*, under which it was for a long time classified. It has long been recognized as injurious to ripe fruits from its habit of eating into them, sometimes to the core. The spring brood has shown a fondness for the sap of the sugar maple. The statement given above that it pierces or gnaws the bark of pear trees apparently for feeding on the sap, seems to confirm an account given some years ago, but questioned at the time, that it gnawed the bark of apple trees for the sake of the sap—the trees looking as if they had been attacked by mice or rabbits. Why the beetles should infest only the one tree in the orchard, may perhaps find its explanation in that the sap of the "dying" tree from its diseased condition, may be more attractive to it or issuing from portions of its trunk. Another bad

habit of this beetle is that of burrowing beneath the husks of corn in the field and eating away the kernels while in the milk from the tip downward for several inches. In years of unusual abundance of the beetle, these injuries have been quite serious in some sections of the country.

We can do but little against this insect except reducing its numbers by hand-picking, or by jarring it from the branches of trees when occurring thereon. Only in oc-



The Indian Cetonia, EUROMYIA INDA, natural size; *a*, *b*, enlargements of antenna, anterior leg, and posterior leg.

casional years does it become annoyingly abundant. The present year it is being frequently reported from New York localities. J. A. LINTNER.

INJURIOUS BEETLES.

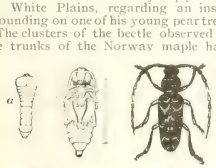
I send you to-day two kinds of beetles. The nutmeg colored one is either the predecessor or successor of the borer which is so destructive to my Norway maples, beech and birch trees. I find daily a cluster of from five to fifteen of these beetles on the trunk of the trees, especially the Norway maple, either near the ground or a few feet up. The borer is like the fruit tree borer.

The striped beetle I saw coming out of holes in the trunk of the common maple and I find it on shrubs. M. F. M.

Detroit.

The "nutmeg colored beetle" of the above communication, the larva of which is thought by the writer to be destructive in its burrowing operations in Norway maple, beech and birch, is the "Indian Cetonian," *Euromyia Inda* (Linn.). It is the same as noticed in my reply to E. B., White Plains, regarding an insect abounding on one of his young pear trees.

The clusters of the beetle observed on the trunks of the Norway maple have



The locust-tree borer, CYLLENE ROBINIÆ: *a* larva, *b* pupa.

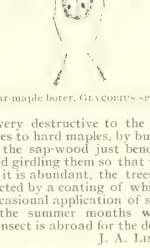
probably been drawn thither to feed on the sap flowing from wounds in the bark. If it can be shown that the "borers" observed are the larvæ of this beetle it would prove to be an interesting discovery, for so far as I have knowledge its early stages and habits are unknown, and therefore, a desideratum.

The "striped beetle" seen "coming out of holes in the common maple," is the locust borer, *Cyllene robiniæ* (Forster). It is one of our handsomest long-horned beetles in its velvety-black thorax and wing-covers, the former crossed by two golden-yellow bands and the latter by six waved or angulated ones. Years ago this insect destroyed nearly all of our locust trees, but at the present its injuries are not very noticeable. It is not known to attack any other tree than the locust. If the beetles sent with the above inquiry were taken while emerging from a hole in a maple it is a singular circumstance, for while the golden rods in autumn and some other polleniferous plants are visited by it for food, it should not be found within a hole in a maple. There is another beetle, the maple tree borer, *Glycobius speciosus* (Say)—of the same colors and with similar markings as the above, but of a larger size, which infests and destroys the maples, and during the month of August may often be seen depositing its eggs in crevices and holes of the trunks. Has not the locust Cyllene by some means been confounded with the maple Glycobius? J. A. LINTNER.

A MAPLE TREE BORER.

From a subscriber, Milville, N. J., we received some insects found sticking into silver maple trees. The piece of bark shows how the head remained stuck into the hole. The hole did not seem to go beyond the bark.

The cavity within the bark of the silver maple contained a small portion of the pupal case of one of the maple tree borers, *Ægeria acerni*, Clemens, or the "maple tree clear-wing." This insect is in some localities, particularly in the Western



The sugar-maple borer, GLYCOBIUS SPECIOSUS

States, very destructive to the soft and sometimes to hard maples, by burrowing through the sap-wood just beneath the bark, and girdling them so that they die.

Where it is abundant, the trees should be protected by a coating of whitewash, or an occasional application of soft soap during the summer months while the winged insect is abroad for the deposit of its eggs. J. A. LINTNER.

THE SQUASH BUG.

F. A. W., Convent Station, N. J., sends some insects, and asks what's their name and how to get rid of them.

The insects sent are the notorious squash bug, *Anasa tristis* (DeGeer), in their mature and pupal stages—the smaller ones with wing-pads only (undeveloped wings) being the pupæ. All squash growers are familiar with the harm done by this insect.

The best remedies for it are believed to be the following: The insect passes the winter in concealment in its perfect stage, and generally comes abroad from its hiding places toward the latter part of June. It about this time, or a little before, pieces of bark, chips, bits of wood, or pieces of board, be laid on the ground near the hills, the hibernated bugs will hide beneath them when not feeding or depositing eggs. The "traps" should be lifted and examined morning and evening and all found beneath them killed. A small pail containing kerosene will be found convenient for dropping them in and killing them. In addition to the trapping, the underside of the lower leaves should be examined at intervals of a few days for the eggs, which are of a dull orange color, flattened on their sides. As they occur in clusters, they can easily be detected and crushed by hand. By the above means, the injuries of this pest can be greatly mitigated. J. A. LINTNER.

SCALE ON GREENHOUSE PLANTS.—G. S., Fendleton, Oregon, asks: "What is best means to overcome scale in a general greenhouse? I have found nothing so far except hand picking and that is almost an endless job, where a large collection of general plants is kept. It has troubled our abutilons, palms and citrus varieties principally. Fumigation is not practical."

Brushing it off with a small stiffish brush and washing with soapy water and a sponge is the safest method. Try Fir tree oil, or Little's Antipest, using them according to directions. Badly infested plants aren't worth cleaning. Get up a stock of clean young plants, then throw the old ones away. Getting rid of scale on greenhouse plants is time killing, tedious work. Fumigating with tobacco has no effect whatever on scale.

The Fruit Garden.

THE MUSCAT OF ALEXANDRIA GRAPE.

What a beautiful and truthful picture of my muscats you have got to be sure. These two bunches were in the collection of hothouse grapes exhibited by me last year at Boston, when I obtained the gold medal. That master of grape growing, David Allan, was so pleased with them that he carried them out to a photographer and had them photographed for GARDENING.

The Muscat of Alexandria although one of the oldest and commonest sorts is still the best all purpose white-skinned greenhouse grape in existence. Perhaps if a person were restricted to one greenhouse grape he would choose the Black Hamburgh, if to two he would certainly add this muscat.

I start our muscat grape vines early in March with a night temperature of 40° to 50°, syringing the canes two or three times a day and shut up the house early to keep in some of the sunheat. As growth advances increase the temperature to 65° at night, and allow it to rise 10° or 20° higher during the day.

When the vines come into flower let the temperature range from 70° to 75° at night, and 5° higher with the aid of fire heat on sunless days; on bright days it may rise to 90° if free ventilation is given. But avoid cold draughts.

When the vines are in flower I take a camel's hair brush and go over the bunches three times a day, dusting them with their own pollen, or better still, with pollen from some other variety, if it is a free setting one, that I may have in bloom at the time. After the berries are set we use the syringe to wash off the old flowers, but we do not syringe the vines again

MUSCAT OF ALEXANDRIA GRAPES

till after the fruit is ripe and cut. When the fruit is well set I let the night temperature drop to 65°.

Before thinning them I allow the berries of muscats to get larger than those of free setting varieties. By that time give a chink of front ventilation on fine days. Scalding during the stoning period can be avoided by leaving a little ventilation on top and bottom, day and night, with a little fireheat at the same time to keep the air moving.

When the berries begin to color, leave air on the house day and night, gradually increasing it as the fruit gets riper and better colored. We generally begin cutting muscats about the last week in August, cutting it as we need it for use until the middle of November when what is left is all cut off with a little piece of the cane attached and put into the fruit room where the ends of the canes are stuck into bottles of water. In this way we keep the grapes till Christmas.

We use water very freely in watering the vines, and at all times even when the fruit is ripe. As we keep the roots of our vines close to the surface of the ground should we let the surface get dry the fruit would shrivel, and after it shrivels no amount of water will plump it up again.

If the vinery is glazed with A1 glass it will need no extra shading, but if the glass is thin or of inferior grade and full of blisters, a thin shading is an advantage. The Madresfield Court black muscat is a grape I think very highly of. As you know the berries have a fault of cracking when they commence to color, but I find that that lasts only for a brief season like scalding and can be overcome in the same way as that disease.

GEORGE MCWILLIAM.

CURRANTS AND GOOSEBERRIES, FALL PLANTING.

The following is an answer to "A Reader:"

By all means plant in the fall, and as early as possible, your plants will gain almost a year's growth by it, that is if they are in good, healthy condition when received, and the ground in which you plant them is not low enough to hold water on in winter. Both gooseberries and currants start to grow so early in the spring that it is better to plant them in fall than in spring. In planting, don't cut them hard back, simply tip them, but cut out the branches, leaving from three to five to each plant according to its strength. They do not need covering in winter but a good mulching of manure up about them will help them. We sometimes have it as cold as 25° to 30° below zero here, and I find both gooseberry and currant bushes quite hardy.

I would also plant raspberries now. Cut the canes back to eighteen inches or two feet and before hard frost sets in lay down the plants and cover them with a good coating of soil.

Planting these things early in the fall has been my practice for years and I seldom lose a plant. JOHN T. TEMPLE.

Davenport, Iowa.

FRUITS FOR ARKANSAS.

In GARDENING, page 328, June 15, I note the request of A. L. C., Arkansas, for varieties of fruit, etc. I would like to call his attention to the various seedling apples of that state. It would be hard to find better or finer apples any where than the Shannon, Crawford, Arkansas Beauty, and Arkansas. The state is called the seedling ground of the country, not only of apples, but also other fruits, notably the Howard County Seedling pear and Arkansas Seedling peach. The finest canned peaches I ever ate were the White Heath, raised in Sebastian county, Ark., and I have eaten them from New York, Delaware, New Jersey, Michigan, Nebraska, Colorado, California and Kansas. In looking over the annual report of the Arkansas State Horticultural Society, 1893, I find in strawberries Michel's Early stands first, Crescent comes next, and when land is too poor for any other sort Crystal City will do. In blackberries Early Harvest and Snyder are those which do the best and Brandywine in raspberries. Some varieties of apples, like Ben Davis, which is called in the west an apple of poor quality assumes different texture and taste on the soils of Arkansas, being of finer grain and far richer, in fact it is a very good apple. The Kieffer pear grows to enormous size there. For quality the Seckel stands first. It seems to thrive fine on the red lands of Arkansas valley.

Nebraska. F. C. J.

JAPANESE SWEET CHESTNUT.

The Japanese sweet chestnut, though very little known, will prove of great value to us. It is comparatively dwarf, fruits early, and is far hardier than the Spanish species. There are trees of it here not over six feet high, with many burrs on them now, and these trees are seedlings, not more than five years old. I have seen burrs on them when mere bushes of but three to four feet. Being hardier than the Spanish is a great gain. Hereabouts the Spanish has to become acclimatized before it stands our winters unscathed. On the other hand, of the Japanese species as represented by hundreds of seedling and other trees of it here I have never known of one to be injured in winter. It will probably succeed in Western New York, and perhaps further north. The nuts are as large as the Spanish, but not the equal of our native species in quality. Large size in fruits, however, is very taking. As this Japanese sort grows to but a small tree, it renders possible the growing of it in small gardens, where room could not be given to one of the larger growing sorts.

Philadelphia. JOSEPH MEEHAN.

"MAIDEN" TREES.

The suggestion is now being made, and indeed strongly urged, that orchards be set with trees of only one, or at most, two years growth from the bud, or the root graft. So good an authority as T. T. Lyon says: "Set maiden trees always" —by which I understand that yearlings are meant. Twenty-two years ago I was urging the same thing, when laboring to induce the setting of iron-clad varieties in northeastern Vermont. My idea, at that time, was that the yearling trees could be sold much cheaper, and people could afford to buy and plant them in larger quantities. But I found it to be very difficult, in fact practically impossible to sell yearling, or even two year old trees, with straight unbranched stems, because they look so small as to produce the impression that few planters would live to see them come to any considerable degree of fruitage. As for myself, I have planted hundreds of them, and they are now among the best trees in my older orchards. Of course subsequent growth depends upon subsequent care.

Vermont. T. H. HOSKINS.

I have been a reader of GARDENING about a year * * and I expect to continue to be one as long as it is published on its present lines, for I like it immensely.

Branch Co., Mich. GEO. D. FORD.

I like GARDENING very much, it is so thoroughly practical. H. G. P.

September 24, '94.

The GARDENING I consider is the best floral and gardening journal published.

C. W. P.

Shickley, Neb., Sept. 26, '94.

GARDENING

WILLIAM FALCONER, Editor.

PUBLISHED THE 1ST AND 15TH OF EACH MONTH
— BY —
THE GARDENING COMPANY,
Monon Building, CHICAGO.

Subscription Price, $2.00 a Year—24 Numbers. Advertising rates on application.

Entered at Chicago postoffice as second-class matter.

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All communications relating to subscriptions, advertisements and other business matters should be addressed to The Gardening Company, Monon Building, Chicago, and all matters pertaining to the editorial department of the paper should be addressed to the Editor of GARDENING, Glen Cove, N. Y.

GARDENING is gotten up for its readers and in their interest, and it behooves you, one and all, to make it interesting. If it does not exactly suit your case, please write and tell us what you want. It is our desire to help you.

ASK ANY QUESTIONS you please about plants, flowers, fruits, vegetables or other practical gardening matters. We will take pleasure in answering them.

SEND US NOTES of your experience in gardening in any line; tell us of your successes that others may be enlightened and encouraged, and of your failures, perhaps we can help you.

SEND US PHOTOGRAPHS OR SKETCHES of your flowers, gardens, greenhouses, fruits, vegetables, or horticultural appliances that we may have them engraved for GARDENING.

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CANNAS GROW BIG or remain dwarf just as they are well fed or starved. Planted in the open garden and unattended to as regards watering in summer Star of '91 grew 30 inches, Crozy 40 inches, Sarah Hill 38 inches, Paul Marquant 36 or thereabout; in specially manured and deeply worked ground Star grew to 4 feet, Crozy to 5 feet, and Sarah Hill, Secretary Stewart, Chas. Henderson, Bouvier, Cabos, Paul Bruant, and some others to 6 and 7 feet, and Marquant about 6 feet.

S. REYNOLDS HOLE (the Dean of Rochester, England) is in this country on a three months' visit. He is one of the greatest rosarians living, and wrote "A Book about Roses." He is the man who grew roses because he had roses in his heart. Dean Hole loves roses and grows them and everybody loves the Dean.

WHITE SWEET PEAS.—Over in Europe they are having considerable discussion about which is the better white sweet pea, Emily Henderson or Mrs. Sankey. Our advice is grow both. If you want one for forcing try the former, and the same if for early outdoor flowers. For general and late crop, though we will stick to Mrs. Sankey till we know more about the other, but we believe there is room for both.

SCENTED GERANIUMS.—In the *Gardeners' Magazine* J. Hudson names the following: Balsam scented (*Pelargonium radula major*), nutmeg scented (*P. fragrans*), peppermint scented (*P. tomentosum*), rose scented (*P. capitatum*), orange scented (Prince of Orange), lemon scented (*P. crispum*), filbert scented (Shottesham Pet), turpentine scented (Lady Plymouth), and almond scented (Pretty Polly).

CHARLES A. DANA, THE OWNER OF DOSORIS.—In *McClure's Magazine* for October thirty pages are devoted to an interesting sketch of the life of Mr. Dana, with several portraits of this noble man, and views at Dosoris. His public life is the topic touched upon. It is as he is at home that we know him, and a purer, grander, or nobler gentleman than he is we do not know. He has owned Dosoris for twenty years.

CANNA SUNSHINE.—Apropos of our notes page 23, October 1, F. R. Pierson Co., Tarrytown, N. Y., the raisers of this new canna write: "I tell you Sunshine is a grand thing. It is the freest blooming canna we have ever had; there is no canna that sends up flower stems with the freedom that this does. It is away ahead of Paul Marquant; it has a brighter color, better flowers, and is a freer bloomer. You may think this incredible, but it is so."

FLOWER SEEDS IN POLITICS.—An enterprising candidate for Congress in a state where the ladies vote, recently applied to the Secretary of Agriculture for a supply of gift flower seeds to be distributed among the lady voters of his (the candidate's) district with the view of influencing their votes in his favor. The honorable secretary promptly denied the request and sent the applicant a stinging letter of reproof. And we sincerely hope the ladies will add to the reproof by refusing to recognize the man who should descend to such base practice.

LANDSCAPE GARDENING.—The *Gardeners' Chronicle* gives the following advice to a young gardener: "If you intend to follow landscape work as a means of getting a livelihood, you should place yourself under some landscape gardener of acknowledged ability, paying a premium. You would require to have a knowledge of land surveying, plan drawing, and levelling, together with a thorough acquaintance with trees, shrubs and garden plants generally, forestry and cognate subjects, and more than all you should have ideas—in fact, you should be an artist or you will never be more than a copyist."

FRANCHETT'S GROUND CHERRY OR STRAWBERRY TOMATO (*Physalis Alkekengi Franchetti*) is a new and robust plant recently introduced from Japan by Mr. James Veitch. The old strawberry tomato (*P. Alkekengi*) from Europe and Asia, is not uncommon in our gardens where as a cultivated or naturalized hardy perennial we enjoy its cheerful red calyces and fruits. This new comer is of annual duration, and far more robust in body than the other one and its fruits and inflated calyces are much larger and the crimson and yellow coloring more pronounced. We hope to get it among seed novelties in the near future.

A VARIEGATED FIRE-ON-THE-MOUNTAIN PLANT (*Euphorbia heterophylla*).—Last spring Mr. A. W. Smith of Georgia sent us a variegated plant raised from seed and another raised from a cutting. Both grew well and we found very little difference between them as regards habit, vigor or variegation; the leaves are much blotched or marked with creamy yellow. In late summer or autumn the tip leaves become marked with a large scarlet blotch in the middle, presenting a very noticeable effect. The variegated as well as the green leaved ones have this vivid marking. The green-leaved form has nothing very striking about it till it "blossoms" in the fall, but the variegated form is a marked plant all of the time. Under date of October 19 Mr. Smith sends us a lot of cut sprays of his variegated plants, and they are very much colored and very beautiful. He writes: "No number of sprays can give an idea of the plant as it grows here outdoors, where it is three to four feet in height, and two to three feet through, with its innumerable markings in every shade of yellow, green and scarlet. It is certainly the most brilliant of all variegated plants, and I feel well repaid for my five years' work in bringing it to its present perfection."

TECHNICAL NAMES FOR PLANTS.

A few days since I was at Highland Park, and one morning before he was out of bed strolled through the grounds of Mr. W. C. Egan. His place is decidedly the best kept and most attractive so far as lawn and floral effects go of any in the town. Mr. Egan being out of business has ample time to cultivate his natural taste for horticulture. If he in writing on the subject of plants, shrubs etc., would call them by their plain barnyard American names amateur readers of GARDENING might catch on to his valuable suggestions and information.

Oconomowoc, Wis. EDGEMOOR.

In Mr. Egan's writings, whenever there is an accepted English name for a plant he generally uses it, and he knows enough not to manufacture an English name or use a literal translation of the technical one to designate the plant he is referring to, because neither being in common use would be comprehensible to the reader. Mr. Egan is strictly an amateur in gardening in heart, practice, and pen; his beautiful garden and country home are his own creation, and his vast array of lovely flowers are, each and every one, the children of his own loving care and selection. Should he, or we, or anyone in our columns write about plants that you are not familiar with by the names given please write to us about it. It is our duty to give our readers all the light in our power and to make gardening easy, pleasant, and interesting to them; and it is our wish and ambition to do this.

The Vegetable Garden.

THE VEGETABLE GARDEN.

This department wants strict attention at this time of the year. Crops do no good in the ground now and the sooner we get them up and taken care of the better. Begin with the root crops as beets, carrots, salsify and the like, then lift and store the celery, and after that bury the cabbages: Never handle vegetables in wet or frosty weather, choose dry weather for lifting and storing crops, be they root crops like beets or carrots, or leaf crops like cabbage and celery.

THE CELLAR.—People who haven't a large supply or variety of vegetables over winter generally store what they have in their cellars. For this purpose the cellar should be cold, for vegetables will not keep well in a warm furnace heated cellar. If frost gets into the cellar, a little covering of ordinarily moist sand or loam over the roots will keep them safe, and some hay, straw, sacking or old mats laid over the cabbage or celery, and things stored in barrels will keep them safe enough. If there is no cellar room or the cellar is too warm, and you have got a close shed or barn, store the vegetables there and be sure to cover them enough to completely exclude frost. A barn cellar is an excellent place to keep vegetables in. But if you have neither cellar nor barn room suitable or to spare, you will have to bury the vegetables in the open ground and dig them out as you want to get them for use. This is best done by making a pit for the root crops. Don't store the roots in large bulk lest rot may set in among them; put a ventilating tile into every pit, even two or more if the pit is large, and cover lightly to begin with but enough to exclude both rain and frost, and on the approach of severe weather add largely to the covering either in the way of more earth or a heavy mulching of tree leaves. By using lots of leaves or straw over the pits we can get at the vegetables most anytime in winter, but we should always take in enough at a time to do for a week or a month according to the weather, the harder it is the more roots we should bring in to save us opening the pits so often in hard weather. Some people sink bottomless barrels into the ground to near the brim, and near together, filling one with turnips, another with carrots, or parsnips, potatoes, and so on, then put a common barrel top cover on each, and pile leaves and litter over them enough to exclude frost but not so much as to cause them to heat and rot.

A vegetable house or pit is a very nice thing to have. It is made much in the same way as you would make an ice house, but is seldom as deep under ground or high above it; six and one-half or seven feet high in the clear is a good size, and while it needn't all be under ground, it should be sunk two to three feet or more to get the warmth of the subsoil to temper the atmosphere. By piling leaves, sedge or hay on top we can keep out any amount of frost. Digging a six feet pit is no joke especially in clay land, and there is no need for it. Anyone who has seen the enormous ranges of celery houses in the market gardens at Arlington, Boston where they are nearly above ground, can readily understand how easy it is to make a shallow sunk house frost proof. Deep pits too have to be strongly built to prevent them from caving in, also in stiff land they must be kept dry overhead or they become cisterns rather than vegetable houses.

ASPARAGUS.—We cut the tops off close to the ground and burn them up, then spread a good coating of manure on the beds, forking it in just deep enough to cover it. Or the manure may be left on the surface as a mulching.

GLOBE ARTICHOKES.—The plants are now strong leaved and green, but cut them over, then place a shovelful of earth or ashes on top of each hill to help shed the water and on the approach of hard weather lay a large armful of tree leaves on the top of each plant and some sedge or litter over the leaves to prevent them from being blown away.

JERUSALEM ARTICHOKES.—They are perfectly hardy if left in the ground over winter. We lift half the bed now, and leave half, mulching part of it so that we can get at it anytime we wish to in winter. What tubers you dig up now should be kept cool, stored in small bulk, and not heavily covered to begin with, for they rot easily.

BEANS.—We have saved both dry beans for seed and hard green ones of the Limas for use in winter. We have a lot of September sown snap beans in frames, but they will not last long. Clear away old poles, storing them for next year's use, and have the land cleaned, manured and dug, it will save considerable labor in spring.

BEETS. If not up, get them out of the ground at once. In topping them don't cut off the leaves close into the flesh. Keep each variety by itself, for mixed beets on a plate don't look well; also keep each sowing by itself, for the roots of the older sowings are apt to be tougher and need longer boiling than do the younger ones. Store them in small bulk, and spread a layer of moist earth or sand on top of the heap to preserve the plumpness of the beets.

CARROTS.—They should be up, topped and in heaps covered with their own tops for a while, or stored in pits or cellars. As in beets, keep the different varieties, and the roots of the several kinds separate. Although carrots will stand a sharp frost when growing in the ground, after they are pulled, a sharp frost will materially injure them, hastening their decay. They are always nicer in winter when covered with a moist sod, or a thin layer of sand or loam is laid over them.

CABBAGE.—If you have only a few heads store them in the coolest part of the cellar covering them with a little hay and a piece of old matting or carpet. If you have a good many bury them in a trench on a dry piece of ground in the garden. The way to do this is to throw out a trench say eighteen inches wide and six inches deep, and into this arrange two rows of cabbages, heads down and root stumps up; and the opposite stumps of both rows leaning together till they touch. Now throw the earth back up against and over the cabbages burying them four to six inches deep. Or if you have a cold frame to spare heel the cabbages into it and so close that their heads press together, now keep them dry overhead and hard frost out, and they will keep nicely over winter.

SAVOYS are treated like plain cabbages.

CURLED KALE should not be buried. Lift it, dress off the lower leaves, then heel it into a bed or frame as close as the plants can well be packed, gathering the crown leaves up together. Cover them with some branches and sedge or leaves, or with an empty cold frame.

CAULIFLOWER.—Break the outer leaves in over the "flower" to keep it safe from frost. The plants showing flower but not advanced enough to make using heads before hard frost comes should be lifted and planted thickly in a frame or into a box of earth in a cool house cellar. If moist at the root they will make good enough using heads before New Years.

CELERY.—We generally lift and store our celery in the second week of November, but north of and inland from here we should advise you to get it up at once. A little frost won't hurt it but sharp frost will. There are four ordinary ways of keeping it over winter, namely out of doors in the ridges where it grew by adding more earth to the ridges, and then covering with tree leaves and litter to keep them in place, enough to exclude frost, second by lifting and planting them close together in regular vegetable houses or celery pits, this is when there is a large quantity. Third, by lifting them from the present ridges, and preparing narrow deep trenches out of doors on dry land, with a board each side; into this trench set the plants, their roots on the moist earth but their tops upright and uncovered except for the covering afforded by the plants being all standing up and close together. Over the top of this trench is placed a board A like cap to shed water, for it is necessary to keep the plants dry overhead, even if they are moist at the root. Having the earth well banked against the sides and on the top a heavy layer of tree leaves frost is easily excluded. Fourth, where only a few hundred heads are grown it is very easily taken care of. Get a packing box, or any other box 20 to 24 inches deep, but otherwise of any ordinary size; bore a few holes in it about eight or ten inches from the bottom for air holes, and put in two or three inches deep of moistish soil in the bottom. Now take the celery, strip off any decaying outer leaves, and then lay the plants into the box, roots on the ground and heads up and erect, and all close together till the box is full. Keep it in a cool cellar or frost proof shed, and keep frost away from it, and don't wet it overh ad. If one box won't hold it all use two or more.

ENDIVE sown about the middle of July is in good form for using, large and leafy; to blanch it we tie the leaves up together as one would a Cos lettuce. Or a piece of wide board or slate laid over each plant will whiten the leaves, but tying up is the easiest. We are so apt to confound endive with lettuce that we are apt to sow it too late, lettuce is a two months' crop in summer, endive a three months' one. Save it from frost by lifting and storing it close in a frame, or boxes in the cellar.

HORSE RADISH.—We leave it in the ground, digging it as we want it as long as there is no danger of frost locking the ground, before hard winter weather sets in however we dig up a lot, enough to last through the winter, and store it in a box or bin in a cool cellar or pit, covering it with moist earth or sand to keep it fresh and plump.

LEEKS are much abused vegetables. They are so very hardy that we may lift them and heel them in close together in a row or clump, covering it with leaves and brush enough to keep frost out to allow us pull some leeks anytime we wish to in winter. Or we can set a bunch of them into a box of earth in the cellar.

LETTUCES are past outdoors, we must now cut from frames or greenhouses. We get 50 to 60 nice Big Boston heads from a 3x6 feet sash. We fill every available sash with lettuces at this time of year, the plants are in all stages of growth from newly planted to cutting size. Their growth and succession are now regulated by keeping warm or cool as the cases may

warrant. While lettuces, especially young plants will stand a good deal of frost, hard frost is quite injurious to heading plants, therefore be on the safe side and don't let frost get at your lettuces. Protect the frames by banking earth, ashes, leaves or manure around them, and using mats, shutters, sedge or other covering over the sashes.

MUSHROOMS.—Before the beds come into bearing the house, if need be, may be kept a little warmer than at bearing time, say 65°, bearing 55° to 60°. If possible, by covering the beds with hay or straw keep them from drying out too quickly, and if they are inclined to be dry sprinkle the covering rather than the bed, should the bed be dry, however, give it a watering. Never spawn a bed till its heat is on the decline, and at least under 95°. It is safe for beginners not to put the loam coating over the beds till about a week after they have been spawned. Avoid draughts in your mushroom cellar. Absolute darkness is not at all necessary to the growth of mushrooms, but when artificially considered, a steady temperature is. While six weeks is the set time from spawning till bearing time, there is nothing certain about it, indeed at this time of year it often is two months before a mushroom comes in sight. Continue to collect fresh horse manure for new beds. If you are an old hand at the business experiment with different manures, etc., to your heart's content, but if a beginner stick severely to fresh horse manure. It doesn't matter if there is a good deal of straw in it providing the straw got well wetted in the stable, but we have no use for dry straw. In preparing the manure have it equally moist but not wet, let it get warm but never fire fanged or burned and to save it from this it will have to be turned frequently, say every second day or every day; indeed before frosty weather we often turn it twice a day.

PARSLEY.—We keep a supply in frames over winter. Most people lift a lot of old roots and plant them closely in boxes of earth placing these in a light part of the cellar. By laying a few fir spruce or pine branches over the outside parsley, we can pick from it till Christmas.

SPINACH.—From sowings early in September we have lots of good spinach outdoors, the leaf maggots have been very bad on the crop though. By the time hard frost sets in we will have plenty spinach in frames. In severe weather the frames should be well covered for hard frost will hurt the crop. The outdoor crop which is to remain in the ground till next spring, we cover with a thin mulching of sedge about the same time as when we do our strawberry beds.

SQUASHES.—It is all very well to pile up the squashes in the shed or elsewhere where they will be dry and away from frost, before this, but now we want to keep them warm if we wish to save them through the winter. The market gardeners who have regular squash houses maintain a temperature of 60° in them.

SALSIFY, scorzonera and parsnips are all pretty hardy, and keep well in the ground over winter. We lift say two-thirds of them now, leaving the balance in the ground till the first thaw of spring when we lift them for use. Preserve them like carrots.

TURNIPS of all kinds should be pulled now, topped and stored as we would carrots.

EGG PLANT.

I send by to-day's mail for your inspection a sample egg plant fruit. For economic reasons the one sent is about half size but for shape, coloring and shading it is a typical one. A year ago as for twenty year's back I put out plants of the N. Y. Round Purple. I noticed one of the plants bore fruit of a distinctly different color and was much more prolific. Time proved them to be much earlier also, so much so that I decided to get seed of it if possible. It ripened nicely and this year's crop is from that seed. I have all the while thought that the parent plant was a sport from the N. Y. Round Purple. My object in sending sample is to get your opinion in the interest of the lovers of the fruit. If you think it worth propagating I would be glad to send you seed or to any practical gardener you may suggest. My experience with the egg plant is it is very fickle, some plants bearing well, others none. I remember a few years ago I had a row of eight fine plants and only harvested one solitary fruit. Now these are different. I have a patch of 20 and almost every bloom seems to set fruit. The plant which grew the sample sent has already furnished nine of edible size. There are many with two on a stem and I saw one with three on a stem. How's that? I think it is such a great benefit to be able to raise fresh seed every year. Fresh seed as you know makes vigorous plants and its impress is not lost until frost nips them in the fall. Until last year, I never could ripen the fruit sufficiently to grow. I have one now (September 12) fully ripe, as yellow as an orange.

GEO. D. FORD.

Branch Co., Michigan, September 12.

The fruit came by mail and reached us in perfect condition. It was of longish shape, and the color of its skin was purple marbled and suffused near the end with a paler or whitish color. Next night we had it for supper, and it was excellent. Mr. T. McCarthy of Providence, and vice-president of the Society of American Cemetery Superintendents, on his way home from their convention at Philadelphia, staid with us that night, and he too ate of it and declared "Why, it's splendid. Yes, I will take a little more, if you please. Do you know, it's the first egg plant I ever ate? It just puts me in mind of a Rhode Island clambake."

Its distinct color is no advantage except in novelty, but its prolific nature and earliness in fruiting are decided advantages. We grow lots of egg plants, year after year, but we never had one bear a cluster of three fruits. We shall be delighted to have a pinch of seed for trial next year.

By the way, comparatively few people eat egg plant, and this is to be regretted for it is a most palatable vegetable. We are very fond of it and often have it both stuffed, and fried in thin slices. When well cooked it is fine.

GREENHOUSE TOMATOES.

In connection with the subject of greenhouse tomatoes for an extra early crop, I would advise W. G. B. to try Dwarf Champion. The stocky character of this variety is so well marked, that I cannot believe, that had he selected it originally, and given it only ordinary attention he would not have had the trouble he mentions of his plants running to vine. The merits of this variety should, I think be more widely known. I like it so well that I have grown it almost exclusively for several years in my private garden for which use I think in all respects it is unsurpassed. Started in hotbeds at the usual time I have found it very early, if not the earliest. A friend of mine was very successful this year in obtaining an extra early crop from plants started earlier in his hothouse. The only fault came later in the season, when the fruit developed a tendency to crack, and for this reason did not stand shipping to market as well as he could wish. [For private use the Dwarf Champion is all right, but its purplish color kills it in the New York market. The smooth, round, firm, bright Lorillard always takes precedence.—ED.]

H. R. V.

Philadelphia.

KEEPING AND PREPARING HEN MANURE.

Kindly let me know the proper way to keep hen manure till ready for use. I have been scattering about equal bulk of sandy loam over it and keeping under shelter, but some say the heap should be moist. How would equal bulk of kainit (about 14% potash), acid phosphate (14%), and hen manure and loam, all thoroughly mixed, answer as a fertilizer for early potatoes and melons? INQUIRER.

Goldsboro, N. C.

A good way to keep poultry manure is to mix it with equal parts of damp loam or muck and to sprinkle over the mass a little land plaster or kainit. About six weeks before needed for use an excellent concentrated compost may be made thus:

Poultry manure 1 part,

Cotton seed or dissolved bone meal, 1 part,

Dissolved S. C. rock (acid phosphate) 1 part,

Kainit, 1 part.

Spread the materials in the order named in layers three to four inches thick and build the heap about five feet high. Moisten the cotton seed or bone meal with water or liquid manure, or if convenient, the cotton seed may be soaked for two or three days before introducing into the compost. Cover with rich loam or land plaster and allow the completed compost to stand for a month, when the heap should be thrown over and the materials thoroughly mixed. It is now ready for use and may be applied to early market crops at the rate of from 1000 to 2000 pounds to the acre. Build in a place sheltered from storms and keep the mass damp by the application of water or liquid manures. FRANK W. SEMPERS.

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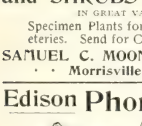

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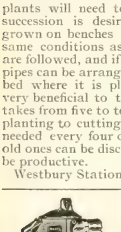

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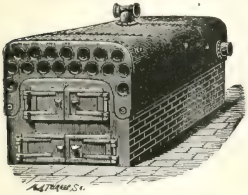

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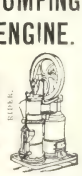

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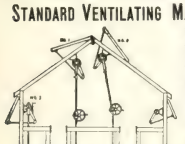

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GARDENING

Vol. III. $2.00 A YEAR 24 NUMBERS. CHICAGO, NOVEMBER 15, 1894. SINGLE COPY 10 CENTS. No. 53.

A GLIMPSE OF THE OCEAN

A GLIMPSE OF THE OCEAN.

Dosoris is an island close by the north shore of Long Island and about thirty miles east of the city of New York. There is no open sheet of fresh water on the estate, but there are a good many charming views along and across Long Island Sound. On a clear day the mainland shore—Westchester county, N. Y., and to Greenwich, Conn.,—can be seen very plainly from Dosoris, and all the shipping through the Sound must necessarily pass by in front of this little island.

Our illustration is engraved from a photograph taken here some weeks ago, and shows a piece of tree planting above a bluff. Through the notch in the middle appears a fine broad stretch of water about 8 or 9 miles wide. We are now looking diagonally across the Sound towards Greenwich. When this photograph was taken the camera was 100 yards back from the nearest trees shown. The rib across the lawn marks the last swath of the mowing machine.

The large spreading tree to the right is a honey locust. It thrives admirably here and makes a beautiful and pleasing tree, airy and graceful, but on account of its terrible spines we can not recommend it for planting close by our dwellings. The thick tree to the right of it is a young European beech, the tall dense growth under its left branches is a triplet group of fastigiate oaks.

The thick dense evergreen bushes at the notch consist of Mugho or Alpine dwarf pines, dense, pigmy forms of firs and spruces, and junipers. Their form is natural, they are not clipped into shape, and they vary from 12 to 20 years old. Those on the brow of the bank only are seen in the picture.

The two tall deciduous trees to the left of the notch are common hickories. They stand in an exceedingly exposed position, and in the teeth of the fierce northwest winds which are our prevailing ones in winter. In front and to the left of them is a group of goodly sized white spruce with a few large white pines. This spruce stands the winds better than the pine, but where fully exposed to the fierce winds of winter even the spruce gets bare on the northwest side. A thick growth of yellow locust on the face of the bluff (not seen in the picture) breaks the winds from the

evergreens at the top of the bank. The evergreens on the windward side are Austrian and Scotch pines, but the Austrian is much the better one for this purpose, in fact it is the best of all evergreens for such work. Scattered in front of the white spruces and where they are well sheltered are a few specimens of other trees such as the European bird cherry, the European drooping linden (*Tilia petiolaris*), cockspur thorns, etc.

This question might suggest itself to many: By clearing away that group of hickories and spruces couldn't a broader view of the Sound be had? True, but the peep through that notch is a beautiful and distinct view; to the left of the group and not shown in the picture is a broad straight-across view of the water with the country beyond for miles in sight, and there are other views in other directions. The planting adds to the comfortable appearance and hominess of the island, for too bare a front has an impoverished, naked effect. Besides, at that corner, which is the northeast, we need the protection afforded by these trees to save the younger ones further back from the shore. And a good feature of the planting of that notch is that one can sit on the piazza of the mansion house and look across the water over the heads of the trees and without the view being impeded in the least. And as the dwarfness of the trees is natural there is no perpetual care required in trimming them down to the proper height.

The Flower Garden.

THE FLOWER GARDEN.

Get everything tidied up before the winter sets in. Simply because the frost has come and killed the tender plants, and the hardy perennials to the ground is no reason why we should leave our gardens littered up with dead plants, and other rubbish. A clean, trim, tidy garden always looks well, besides it is a public endorsement of the owner.

BORDERS OF HARDY PLANTS.—Say filled with pæonies, larkspur, phloxes, bell flowers, sunflowers, German irises, bee balm, coreopsis, meadow sweet, and the like, should be put in order now for winter. We cut over the dead tops of all the plants and clear them away, securely label everything that needs it, pull out any bad weeds and give a general level off to the surface of the bed with a hoe or rake; then we spread a lot of well broken up manure over it all for two purposes, to fertilize the land, and to shade and protect the plants, and their crowns in particular, from the winter's severity or changeableness.

AN EXCELLENT PROTECTION.—The old dead stems of pæonias, phloxes, sunflowers and other hardy plants if left uncut and dishevelled in the borders collect and hold the tree leaves that are drifting about in fall, and the snow in winter, and undoubtedly form one of the best and most natural winter protections the plants in the ground can have, but they are untidy, unsightly, uncalled for, and quite unnecessary, the clearing away of all surface stems and rubbish, and mulching with short manure answer every purpose.

CLEMATIS.—Where these are run up on trellises or intertwined among other vines it may be well to let them alone; but where they are tied up to single stakes, shorten in straggling and dishevelled shoots, then unfasten the plant and let it drop to the ground, now gather it together around the base of the stake and cover it over with a few shovelfuls of loam. The vines winter well in this way. While this is good for the early blooming varieties, saving the old wood isn't of much avail in the case of the late sorts that bloom on the current years wood. And although *Flammula* and *paniculata* may have a good deal of sound wood when spring comes it is a question if it is better to try to save the old shoots than to cut them down to the ground in fall. Strong plants grow rampantly and are as sure to bloom from the young shoots springing directly from the ground as from those produced on the preserved old wood. *Pitcheri*, *crispa* and *coccinea* should be cut down in the fall as you would a common herbaceous perennial, and an armful of leaves or a forkful of litter placed over the roots. Herbaceous non-climbing species as *Davidiana*, *tubulosa*, and *integrifolia*, should be cut over, and even *C. stans*, which is inclined to being shrubby, we find does well when cut back to the ground in winter and well mulched.

CLEMATIS PANICULATA FROM SEED.—We had some young plants in a bed last year; they were left flat on the ground, and bloomed and ripened seed there. Having lifted and transplanted them last spring, the bed was forked and planted afresh with some small trees. We saw no further traces of the clematis till after the rains came in September when seedlings of the clematis began coming up thick all over the bed. If you have saved any clematis seed sow it now and it may come up next spring or not till the fall. Don't sow it in the greenhouse or window, but out of doors, spread a few evergreen branches over it to keep the sun and wind away from it, but don't save it from the frost.

HOLLYHOCKS, SWEET WILLIAMS, CANTERBURY BELLS AND FOXGLOVES cannot be depended upon as unprotected hardy plants in open places, but in the shelter of ranker plants and bushes they seem to winter well enough. Our main crop of Canterbury bells are wintered in a cold frame whence they are planted out into the garden in early spring, but all the others named above are grouped together in beds out of doors and mulched with dry oak leaves, and a few branches, some sedge, or a little dirt is thrown over them to keep them from blowing about. The hollyhocks that have lived over well in the borders should have a small armful of dry leaves placed around each and a little litter over them to hold them in place.

BARELY HARDY PLANTS.—There are a good many of these, for instance acanthus, mist flower, and Larpent's plumbago, that die down to the ground, they should get an extra forkful or two of rank litter mulching laid over them, not only immediately over their crowns but around them.

MOUTBRETIAS live out of doors here in favorable spots, but as there is risk attending them, we lift some of each variety and set them in unbroken clumps into a cold frame over winter where they survive nicely.

SUMMER HYACINTHS (*H. candicans*) in some spots in the garden winters as well as if it were a poet's narcissus, in others it dies out in winter. A good mulching over them is a safeguard, and where there is the least doubt about them, lift the bulbs and keep them dry and cool—but never so cool as to let frost reach them—till spring when they should be planted out again.

STAKES.—We use stakes for dahlias, hollyhocks, tall larkspur, and many other even smaller plants during the summer. Get all such stakes gathered together and assorted according to their length, cut off the old tie-strings that may be still fastened to them, and tie them securely into bundles which should be stored in some shed to keep them dry and preserve their lasting qualities.

PLANT SOME BULBS.—If you have any bulbs not yet set out get them planted at once. Those planted so late as this don't start to grow so early in spring as do those set out a month ago, hence you can mulch them well with safety. Although many of our common bulbs are perfectly hardy freezing does them no good. In planting early we like to plant a little deeper than is usual and not mulch at all or at least only lightly in winter; but in planting late because of the more enervated condition of the bulbs we wouldn't plant quite so deep, but protect the bulbs with a good thick mulching of litter or short manure, removing the same before the plants come through the ground in spring. In mixed borders lots of bulbs can be planted now and without interfering with the summer plants. Observe that bulbs, such as narcissi, irises, fritillarias, and the like make their growth and bloom while the ground is moist with the winter and spring rains and before the summer's drouth occurs, therefore they can be set out among small shrubs and near other permanent plants where late growers would starve.

EMPTY FLOWER BEDS.—All beds from which geraniums, coleus, heliotrope and other tender summer plants have been removed should be cleaned up, manured and forked if to be left empty over winter. If the ground is rich already don't give it much manure, for overfatted soil causes plants to run more to foliage than to blossoms, and a very rank growth isn't desirable with coleuses. For coleuses, castor beans, banana, and other rank growing ornamental foliage plants though give lots of manure.

LABELS AND LABELLING PLANTS.—Much of the pleasure in gardening is in knowing the plants we have in the garden, so far as genera and species are concerned we might trust to memory and our note book to keep us right, for instance we know the genera *Delphinium*, *Pyrethrum*, and *Coreopsis* at sight without the aid of a label, and in the way of species we might remember *Salvia Pitcheri*, *Tricyrtis hirta*, and *Helianthus orgyalis*; but when it comes to varieties as in the case of pyrethrums, phloxes, and pæonies, we must have labels to keep us right. For hardy perennials, bulbs, and the like the proper labels to use are such as we stick into the ground, and are generally made of wood. The labels should be neat but strong, sound and long enough to allow of them being pushed into the ground so deep that frost cannot heave them out of it in winter; the name should be written neatly, legibly and firmly, beginning at the top and writing down rather than at the at the bottom and writing down rather than at the bottom and writing up. Don't make the labels as conspicuous in your garden as are the tombstones in a graveyard; big labels and big lettering are useless. We take a clear, straight grained pine board ⅞-inch thick, and saw it off into 14 or 15-inch lengths; then with a small hatchet split these up into thin pieces which with a knife and plane we readily convert into nice labels. Any pieces of waste pine boards will answer as well. It isn't a case of durability so much as of retaining the lettering that we look to. Cypress, red cedar or resinous woods as yellow pine may last longer

THE JAPANESE VARIEGATED CORNUS

than white pine but they are hard to write on clearly. Every year these labels should be gone over and fixed up a little as regards the writing on them; in fact they should be examined in spring and fall. Now is the time to do it. And see to it that every plant that needs one gets one, and set it deep and firm in the ground. To gypsophila, fraxinella, asclepias, platycodon, lilies and other plants that die down under the surface leaving no trace above as do larkspur or phloxes stouter and deeper labels should be set, to guard against interfering with the roots at forking or planting time in spring.

GRINUM KIRKII.

M. N., Chippewa Falls, Wis., has been on the wrong track. We grow *C. Kirkii* as well as other crinums and amaryllis (except *aulica platypetala*) in the open ground in summer in the same way as we grow gladioli. After the first light frost we lift them, cut off the tops and a portion (three-fourths of the length) of the roots, and then store the bulbs in a warm cellar. They all flower well every year.

Floral Park, N. Y. E. S. MILLER.

LILIUM AURATUM.

Last year you were kind enough to publish a note of mine, with illustration, on growing *L. auratum* in a pit. The two bulbs which were planted four years ago this fall had this season sixteen flower stalks, giving one hundred and sixty perfect flowers. Perhaps pit culture is the successful way to grow the *L. auratum*.

Amherst, Mass. H. HEATON.

EVERGREEN HARDY PLANTS FOR COVERING GRAVES.

To cover graves permanently periwinkle, or "myrtle" as we call it (*Vinca minor*) and European ivy (*Hedera*) are used here. Ivy is more difficult to retain and requires more protection and care in winter. We cover it with tree leaves, then a few bare branches and tarred paper over all. This works well when we can keep out moles and field mice. Myrtle is often discolored in early spring, so we sickle it all off close to the ground, and leaves and flowers follow immediately. A slight covering in winter of coarse stable manure is beneficial to the myrtle.

I might say here that many reputably hardy plants like Japan anemone, tritomas, and erianthus grass, die in the center more from wet than cold in winter, and we can save them to a large extent by covering the mulching over their crowns with a piece of tarred paper to throw off the rain and melting snow.

T. MCCARTHY,
Supt. Swan Point Cemetery, Providence, R. I.

THE WILD EVENING PRIMROSE (*Œnothera biennis*).—H. R. V., Philadelphia, writes: "I enclose a flower and leaf of a plant I have watched with a great deal of interest and curiosity for some time. There is a group of it growing on the sheltered side of a bank by the road side. The stalk is about the size of the golden rod, and is as firm and woody. The plants began blooming in September, perhaps earlier, and have continued freely ever since not appearing to be at all affected by the coolness of the weather. Will you kindly give me the name and state what you think it capable of under cultivation?"

It is the common evening primrose and occurs quite plentifully by the waysides and elsewhere in a wild state. A species known as *Œ. grandiflora* or *Lamarckiana* is a vigorous growing plant not unlike *biennis* in habit but with much larger and finer blossoms; grow it instead of the wild one. It is easily raised from seed, and although a biennial, if sown early it blooms the first year. It is perfectly hardy and after it gets to seeding in the garden it self-sows itself with the lavishness of a weed. But it isn't a troublesome plant at all.

Trees and Shrubs.

THE JAPANESE VARIEGATED CORNUS.

(*Cornus macrophylla variegata.*)

THE BEST OF ALL VARIEGATED TREES.

Under the name of "*Cornus brachypoda variegata*" this plant was sent here some years ago by H. H. Berger & Co., importers of Japanese plants, San Francisco. It has grown beautifully, and we have no hesitation whatever in saying that it is by far the whitest, healthiest, and most striking and beautiful variegated tree or shrub at Dosoris. It is one of the trees that everyone who visits this place makes a note of. And it seems not only hardy, but perfectly happy here.

Let us quote from H. H. Berger & Co.'s catalogue, "a deciduous most ornamental tree, with silvery foliage, variegated with light green, the variegation of which has become fixed and and will always come true. Very rare, quite hardy in cold climate. Most beautiful and striking appearance." Considering its behavior here, the catalogue description is not overdrawn.

The species is a native of Japan, Corea, China, and to the Himalayas, and forms an upright, horizontally branched tree thirty to fifty feet high, and looks exceedingly like our native *C. alternifolia*. In Japan it is abundant in the forests of Yezo and the mountains of Honda.

The leaves are ovate-lanceolate, acuminate at both ends, four to seven inches long, by two to four inches wide, pale green on the underside, and deep green partly clouded with white and with large uneven patches or marginal variegation of clear creamy white. There is nothing washy or indistinct about the variegation. And in October a warm crimson

hue suffuses the foliage, giving it a tricolor appearance.

The positive superiority of this tree's variegation over that of all others in cultivation consists in its pronounced whiteness, and the fact that neither the leaves nor variegation gets scorched by the summer's warm sunshine.

Common in gardens are three or four variegated leaved cornuses, notably the variegated Cornelian cherry (*C. Mas*) whose leaves burn badly in summer; *elegantissima*, of broad bushy form and free white variegation, but it too burns; and *Spæthii*, of the same style, and having yellow variegated leaves, which too though less susceptible than the others are apt to get burned in late summer. This new Japanese beauty surpasses them all in boldness and vigor, and in the showiness, health and persistence of its variegation. But to have it in perfection plant it in rich moist ground, and in a place sheltered from cold winds. Our illustration is engraved from a photograph of a leafy twig taken at Dosoris the middle of October.

PLANTING A BARE HILL TOP.

A subscriber in Central Massachusetts asks: What and how to plant to quickly provide shade and shelter about buildings on the top of a bare, dry, clay hill of thirteen hundred feet elevation, with an exposure to all the winds that blow?

The usual method of planting trees and shrubs singly in small holes in the grass will not suffice. If such a field was kept free of the plow, scythe and grazing animals it would probably be covered with trees in time. Nature would bring this about in the following manner:

In the grass clumps of St. John's wort, asters, golden rods, thistles and others that are possessed of winged seeds or other means of ready distribution, would spring up in clumps and thickets. In or on the edge of these thickets would appear cornels, viburnums, bay berries, huckleberries and other plants, the seeds of which are usually distributed by birds. With these shrubs and after they are established would appear young birches, oaks, chestnuts, hickories, pines, cedars, spruces, or other forest trees, the parents of which were near at hand to furnish seed for the squirrels to plant or the winds to sow. These trees would eventually make a forest. Each series of plants is protected by those preceding it, and without this protection but a small proportion would become established. Nature does not hurry, her processes are slow but sure; too slow, however, to serve this enquirer's purpose, but by taking the cue she gives we may accomplish the desired result in a shorter time. We must secure a shelter, a wind break to curb the fury of the wind, for it is this wind rather than the elevation that does the damage. For this a continuous strip of planting, or series of overlapping groups, having a width of from thirty to one hundred feet should be provided. The surface of these areas should be prepared in such a thorough manner that the average farmer would think your money was being wasted or the ground worn out. The "stiff clay' soil should be heavily manured, then plowed, sub-soiled, cross-plowed and harrowed until it is thoroughly pulverized as far below the surface as it well can be by these processes. Now plant on the windward side a strip about six feet wide of such plants as the wild Manetti or dog roses, *Spiræa salicifolia*, bayberry, one and one-half feet apart, then a strip ten feet wide to be planted three feet apart with such shrubs as *Spiræa opulifolia*, California privet, common elder, staghorn sumach, tamarix, panicled and silky dogwood and *Viburnum dentatum*. The remainder of the space to be planted with young and vigorous rapid growing trees like the canoe and white birch, cottonwood, European sycamore, basswood, white ash, ailanthus and black cherry. Inside of this may be a strip of more garden-like plants if such are desired.

Small plants suitable for such plantations can be secured in quantity at a low rate so that the cost of such plantations will not be excessive. They will attain a height of ten feet or more in three years after planting and will then serve as an effective shelter, back of which may be grown a large variety of plants successfully.

The selection of plants most likely to succeed (that are obtainable at a low price) will depend upon the character of the ground. Very likely special requirements as to cultivation, location of plantations with reference to the arrangement of the grounds, access to buildings, direction of views, etc., would also determine the selection and arrangement of plants. However this may be, the result desired is more likely to be secured by the method of planting and kinds of plants indicated than by any other.

WARREN H. MANNING.

Brookline, Mass.

TREES AND SHRUBS.

Go around among your trees and shrubs and mark all that you wish to cut down or root out. You can do this rooting out better now than later on because so far there is very little frost in the ground, hence you can do the work more expeditiously than you can in midwinter, don't leave anything of this sort till spring for then between planting, grading, and fixing up things generally we are apt to be very busy. Use a little discretion in thinning however. In the case of evergreen trees that you wish to get rid of but which serve a good purpose as a shelter for other plants in winter, if practicable leave them standing till the winter is over and get the good of their shelter. At Dosoris, as we use a good many evergreen branches for covering somewhat tender or little plants in winter, and also for temporary windbreaks, we strain a point in thinning the belts of pines, spruces and firs. Instead of clearing away every unnecessary tree in one season, we keep thinning out these supernumeraries, a few every fall, to use them for protecting purposes. In this way those that are left are always pretty specimens. If we did not have this evergreen brush at home we would have to buy it; some years ago we could go out into the waste fields hereabout and cut all we wanted, but now all that idle property is bought up and we can get nothing without going some miles away for it.

In removing duplicate, overcrowding and unnecessary trees don't cut them down; but root them out. While it is a difficult matter to dig out large tree stumps it isn't at all difficult to dig out big trees by the root for in addition to the shovel and the axe we have the great aid of the tree itself to pry the root out of the hole.

STAKING YOUNG TREES.—To all newly planted deciduous trees give a stout, neat stake, and drive it deep and firm into the ground, and fasten the trees securely but not very tightly to the stakes with soft, stout cord, say marlin or lath cord; and where needed use a pad of burlap or bit of old rubber hose between the tier and the tree or between the tree and stake to keep the tree from chafing.

TOPHEAVY TREES such as ground cherry, wistaria, Japanese sophora, rosmary-leaved and Kilmarnock willows, Teas' mulberry, and others that are worked standard high and which are unable to support their own heads in case of a storm should be very securely staked, the stakes being stout, very strong and durable, and deep in the ground to stiffen them. We use locust for this work.

TIERS.—Both in the case of stakes and labels the strings or wires used in fastening them to the trees or shrubs should be examined for two reasons, first to renew them if necessary, secondly, to see that the tiers are not cutting into the bark or wood. If they are cutting into the bark remove them at once, and replace them with new and more roomy ones.

MAGNOLIAS, YELLOW WOOD, KŒLREUTERIA.—V. G., Belleville, Ill., writes: "Kindly tell me which of the following magnolias are hardiest: *Watsoni*, *hypoleuca*, *parviflora*, and *conspicua*, also if koelreuteria and yellow wood trees are hardy in Belleville, Ill., which is as far north as St. Louis, Mo."

The three first named magnolias have not been tested sufficiently to enable us to say how hardy they really are, but we have every reason to believe that the four you name are hardy at Belleville. *Hypoleuca* we believe may prove to be the hardiest, *conspicua* next; the other two should have protection from cold winds. The yellow wood (*Cladrastis lutea* or as it is often called *Virgilia lutea*) is perfectly hardy with you, so too we believe, is the koelreuteria.

SHRUBS FOR NAME.—M. L. G., New York, sends two "specimens for identification and name," but they are not numbered and there is no letter accompanying them. One is the Indian currant or coral berry (*Symphoricarpus vulgaris*), a native bushy, spreading shrub, three to five feet high, and much cultivated in gardens. Its branches are now loaded and arched with bunches of small dark red berries stuck close at the axils of the leaves The other is the spindle tree (*Euonymus Europæus*). It is a common and very beautiful small tree in gardens and wild where it has escaped from gardens; its red and orange fruit is very conspicuous now.

Chrysanthemums.

SOME OF THE NEWER CHRYSANTHEMUMS.

We who grow flowers for market are very particular about the varieties that we cultivate; we must have the most faultless sorts in strength, cleanness and leafiness of stem, and size, fullness, beauty and finish of flower, and purity and attractiveness of color. With this aim constantly in view, for our bread and butter depend upon it, we are always striving after something that is better than we already have, and we have got to discriminate severely. We can not afford to cultivate fancies nor risk any varieties that are capricious, weak, subject to disease or difficult to grow. And just as surely as these varieties are the best for us to grow so too as certainly are they the best for amateurs to have.

The following are among the best new kinds that I have now (October 31) in bloom and every one of them is a fine

L'Enfant des Deux Mondes. Iora. Yellow Queen. Maud Pierson. A. H. Fewkes.

SOME OF THE NEWER CHRYSANTHEMUMS.

chrysanthemum as you can see by the two photographs (showing ten varieties) your artist took here to-day.

L'Enfant des Deux Mondes.—White, hairy petalled, with very delicate traces of pink. "Mrs. A. Hardy" type. Good for pot or bench growing.

Minerva.—Clear, soft, but brilliant yellow; dwarf (three feet), with handsome foliage; it is close jointed and one of the finest varieties ever introduced. It is extra good for growing on benches for specimen blooms, or for pot culture, as it makes a compact bushy plant, and is best on crown buds.

Mrs. Geo. M. Pullman.—A deep, clear yellow flower. The plant has fine, handsome foliage, but is rather tall growing and is only fit for growing on benches, where there is at least five feet of head room for it.

Lady Playfair.—A clear soft pink flower, whose only trouble is its very heavy massive head of bloom which is a little too heavy for its stem without support; otherwise it is a grand variety for bench growing. About four feet high.

Mrs. Geo. A. Magee.—A grand pink flower, and when grown in benches it makes fine specimen blooms. The plant averages four feet high.

Mayflower.—An immense flower of the most graceful form, its general build is massive but not formal, and all things considered it is one of the best novelties of the season. It is good for either bench growing or for pots. Its average height is two and one-half to three feet and it has fine handsome foliage close up to the flower. The crown buds make the best flowers.

Marie Louise.—A fine, bold, white flower, but the stem is a little too weak to carry the heavy bloom. Does best on benches.

Iora.—A handsome and graceful flower, but it is not a good traveler. The variety is good for either pot or bench culture and averages three and one-half feet in height. The color and the blossom is very distinct, being a delicate shade of rose pink.

Yellow Queen.—This probably is the best early yellow yet introduced. Fine specimen flowers of this were sent to New York market on the 7th of October. The average height of the plants is three feet and they have handsome foliage and good stems. It is best on crown buds. The variety is good for either pot or bench culture. The best flowers of this variety were past their best when this photograph was taken.

A. H. Fewkes.—This is a flower of a pleasing shade of clear yellow. The plant is dwarf and sturdy with handsome foliage, good for either bench or pot growing, and is a very desirable mid-season variety.

Other good varieties of this year's introduction are as follows:

Bonnie Marjorie.—An early and desirable incurved Japanese variety with clear soft yellow flowers.

Miss Georgiane Bramhall.—A fine lemon yellow, bold, massive flower.

Mrs. H. Mck. Twombly.—A very fine incurved Japanese variety, with large, massive, but not formal, white flowers. Being a tall grower it is best for bench culture.

Mrs. E. G. Hill.—A very early, large, fine flower, of a beautifully shaded pink color. Its greatest defect is its rather too weak a stem to carry the flower erect. It grows four and one-half to five feet in height on the bench.

Mrs. John H. Starin.—A very fine, bold, massive incurved white flower. The plant grows four feet high and does best on benches.

Mrs E. O. Wolcott.—A very large, incurved, striking flower of a soft but clear satin-like pink color. The plant has handsome foliage and a good stout stem four feet high. It does best on benches and restricted to crown buds.

Maud Pierson.—A high built, incurved, compact flower, of a glossy pink color with an apricot tinge on the tips of the petals. It grows four and one-half feet in height and does best on benches and confined to crown buds.

Wm. Seward is a deep crimson, fine exhibition flower, and like all other dark colored varieties it must be kept very cool after it begins to show color or it will burn.

Eugene Dailledouze is among the most promising yellow-flowered late varieties. John N. May.

Summit, N. J.

WINTERING CHRYSANTHEMUMS.

A chrysanthemum is a herbaceous perennial, the whole plant dies down to the ground every year and takes a season of rest, just as a phlox or sunflower does; and it matters not whether our plants are grown in the greenhouse, window or open garden we should observe this law of Nature.

Another point: Just as a plant is going into its period of rest is when, of all times in the year, it should be let alone, and excitement into renewed growth discouraged.

Hardy Varieties.—Most of the pompones and a good many of the Chinese sorts are perfectly hardy out of doors providing they are left undisturbed where they grew and flowered till spring, and a forkful of rank litter or an armful of leaves is laid over each of them. If the stems are left uncut they add to the beneficial effect of the mulching in two ways, first, by keeping the crown somewhat open and lessening the tendency to rot under the close mulch, secondly, by helping to

keep the mulch in place. But for tidiness sake we would cut the tops back to a foot long anyway.

THE JAPANESE VARIETIES grown and flowered out of doors can hardly be trusted in the open garden over winter even under a mulching; some live all right, others don't. It is therefore safer to lift them and winter them in a cold frame, pit, cellar or shed, than to trust them outside. Select one or two of the best clumps of each kind and lift these without shaking away much dirt from them and pack them one deep and close up against each other in a cold frame or pit or on the floor in a cold cellar Several degrees of frost won't hurt them. In severe weather cover the frames with sashes or shutters and some sedge or straw, and if sharp frost gets into the cellar throw a piece of matting or old carpet over the roots. Try to keep the plants from starting to grow before the winter is over, especially those in the cellar or shed, and this means that they must be kept cool.

PLANTS IN POTS are easy to manage. When their flowers are past cut the plants down to the root, then store them in a shed, cellar or cold frame as referred to above, first turning the plants out of their pots but otherwise not disturbing them, so as to be able to pack them closer together and with earth between them, for not even when they are at rest in winter should the roots be allowed to become dry. If you have not many plants to store away you may turn them out of their pots and pack them in shallow boxes, such as empties you may obtain at the grocer's, heads up, one deep, and with moist earth between them. Then keep them cool. Before storing your plants away for the winter in this way be sure that each one is securely and properly labeled; we prefer wiring the label to the old stump rather than sticking it into the ball of roots pot-fashion. To prevent the sprouts of the plants interlacing when they begin to grow in the frame or cellar we pack the plants in rows with a lath or board between them. Many who grow chrysanthemums in pots keep over one or two pots of each sort in a cold greenhouse or grapery or the bottom of a pit without turning them out of the pots at all, and keep them slightly moist all the time.

VERIFYING THE NAMES.—Before the flowers are all past go over the plants, making sure of their proper names and label them correctly. Wherever a large variety is grown and the plants receive much handling some of the names are most sure to get lost or mixed.

SEEDLINGS.—What a polyglot assortment they are, some are single, others double or half double; and they are of all sizes and shades of color. Seed sown in the house or greenhouse in early spring germinates readily, and if the seedlings receive encouraging treatment they will bloom the same year. Grown in pots and indoors they take up a lot of room, but planted out in a warm sheltered part of the garden they grow rankly, and if very severely disbudded give us an extravagant display of blossoms. After they are killed back by frost we lift and save the pleasant appearing, desirable ones for another year and root out and discard the others. In mild localities by all means raise seedlings and grow and bloom them out of doors, there is great enjoyment in it.

CHRYSANTHEMUMS OUT OF DOORS.—We grow a large variety out of doors and succeed in blooming most of them as, being on the sea coast, we seldom get killing frosts before the middle of November. The plants that have been thoroughly disbudded give nice full blossoms, but these flowers are not to be compared with the monstrous beauties grown in greenhouses. Among those that have done best with us this season are Ivory, Jessica and Domination, all white; Red Dragon, yellow and crimson, early, old, but one of the best for outdoor work; Gloriosum, if severely disbudded and staked it always does well; Yellow Dragon, although a little late makes fine heads; Mrs. J. G. Whildin, canary yellow, tall, and needs staking, early; George S. Conover, deep yellow, large, stout stemmed flowers, and although new healthy and promising; Gold, deep yellow, medium size, and opens well; Source d'Or and Brazen Shield, both golden bronze varieties, and old, open fine outside; Julie Lagravere, dark crimson, small flowered, dwarf habit, not early, but good, and a fine color, and Gloire Rayonante, silvery purple, porcupine quilled, opens well and early every year, but nobody wants its flowers. All Chinese varieties of white and yellow colors have mildewed badly; Baron Beust, however, tawny chestnut, is as usual perfectly clean and full of flowers, but here again nobody wants it; the same with the purples among Chinese sorts.

FINE FLOWERS AT CHICAGO.

Among the most attractive chrysanthemums at the Chicago show were a good many old favorites, but the prize-winning collections, in most cases embraced the newer sorts. The class for seedlings not yet disseminated called out some notable blooms, among them "Philadelphia," the new seedling originating with Mr. Graham of that city. By general consent this flower was the most remarkable on exhibition. It is very large, perfectly globular, with pointed incurving petals, creamy white stained with lemon towards the tip. The peculiarity of the coloring gives the flower a peculiar translucent effect, in spite of its massive build. Another beautiful seedling, which practical growers think most promising, is Mrs. S. T Murdock, originating in Indiana. This is a soft yet bright rose pink, flower of medium size but graceful shape, with a very robust habit. This flower seems free from the livid bluish tinge seen in so many pink chrysanthemums, it received award for best pink seedling. Crystalina, which received award for the best white seedling, was a perfect ball, the ends of the petals being notched. Mrs. W. H. Rand was perhaps the oddest and most striking of the seedlings; it was a large, rather flat recurving flower of a deep golden yellow. The petals were tubular at the base, but about half way up they split into several forked ends, and these were twisted about in most irregular fashion. This will be a showy variety for exhibition. Mrs. Moses J. Wentworth, another seedling, seemed like a deep yellow Ivory, having both form and habit of that excellent variety. The award for best yellow seedling, however, went to Mrs. H W. Emerson, a high built, deep yellow, recurving flower, with every sign of a vigorous growth and habit. Gold Dust, a light yellow incurved hairy flower, was an improvement in that type.

Among the flowers not of the seedling class, it was noticeable that The Queen was certainly the most popular white. In pots or for commercial use Ivory still outsells every other white, but for exhibition The Queen certainly leads. It was the winning white in most cut flower classes, and also in decorative basket. Mutual Friend appeared very little among cut flowers; it is really a more delicately finished bloom than The Queen, and of equal purity, but it was fine among plants grown to single stem and bloom. Marie Louise, which seemed likely to be the coming white last year, has fallen back to an inferior place. A new English white, Rose Wynne, was much liked; it is a very large incurving flower, with broad solid petals, but is not yet thoroughly tested

Viviand-Morel unquestionably leads among pinks; it is very large, yet never coarse, and the color is attractive in spite of a tinge of magenta. It appeared in almost every exhibit. Richard Dean, a new French pink, was favorably noticed: it is a clear delicate color and globular shape, the petals being dented near the end by a little spoon-like depression, the tip forked into a swallow-tail. Consolation was another good pink; so was Mrs. Potter Palmer, a large incurving flower tinged with magenta, a trifle coarse. Mermaid, which has been a favorite among exhibition pinks, looked coarse and a trifle washy. Mrs. F. Thompson, which was an exhibition favorite four or five years ago, looked very coarse and dingy by its younger rivals, it is now entirely superseded.

Among yellows Major Bonnaffon was certainly at the top. It is perfection in shape, color and habit, and received more awards than any other yellow, though Eugene Dailledouze was also excellent. Challenge, the prize yellow of last year, seems to be a disappointment, and was not nearly so good as last year. The center does not open or color well.

In crimson, John Shrimpton, which looks like a larger and fine Cullingfordii, was excellent; so was Fisher's Torch. Seguisiana, a round reflexed old gold bloom, shading to russet at the tips of the petals, received praise from the practical men, although the peculiar coloring suggested fading. Amoor was one of the finest bronzes, a large whorled flower, that made a fine pot plant In the anemone class Rider Haggard was the finest; it is magenta, the disk high and rounding, the florets tubular and shaped like individual horse-mint flowers; the ray florets broad and flat. The hairy flowers were but little represented, and it looks as if interest in them had greatly diminished among growers. E. T. R.

AMATEURS AND THEIR CHRYSANTHEMUMS.

By amateurs I mean those who have small gardens, do their own work and have little time to do it in, who grow a few of many plants and take pleasure in their development from crocus to chrysanthemum. It is to them I send what I have noted this year. There are many more chrysanthemums grown now than there were five years ago. They are to be seen under the lean-to of south and southwest shelters, by the sides of houses and other buildings, and numerous plants are in boxes, small tubs and large pots, placed on piazzas and under porches and in canvas frames, and in cool rooms, they are mostly bonny looking plants with three to six stems in a clump and carrying from ten to thirty or more flowers each. A great many of the buds were taken off when they were small, away back in the beginning of September. When I first (now eight years past) advocated severe thinning of the flower buds many amateurs were afraid to even take off a single one, but all this is changed now.

My advice is this: Select all the early flowering kinds for the treatment above mentioned so as to have them in bloom

Minerva. Mrs. Geo. M. Pullman. Mr. Geo. I. Mayer. Lady Pulsifer. Mandarin.

SOME OF THE NEWER CHRYSANTHEMUMS

from say October 15 to November 5. Here at Oconomowoc, Wisconsin, where I am staying just now, the first frost sufficiently severe to chill geraniums occurred to-day (November 5). There are in many gardens clumps of the old Annie Salter, Chevalier Domage and Regulus chrysanthemums that have stood unscathed for years. The following is a capital list of early flowering ones:

YELLOW.—Firenzi, Gloriosum, Eurus, Marian Henderson and Roballion.

WHITE.—Elaine, Harvest Queen, Soeur Melanie, His Highness, Jessica, Mme. Gastellier and Ivory.

BLUSH.—Lord Mayor, Jean Nicolas.

ROSE.—Viviand-Morel, Sallie McClelland, Dawn.

RED.—Salvator, Sec'y Barotte.

YELLOW AND BRONZE.—Vice-President Hardy, M. Fred L'Usmayer, M. Francois Katner, M. B. Jung.

PURPLE.—Amaranth, John Thorpe, Bohemia. JOHN THORPE.

Chicago.

CHRYSANTHEMUMS IN THE BROOKLYN PARKS.

In the greenhouses here there is now a fine display of chrysanthemums. The exhibition is for the benefit of the public at large, and the people are showing their appreciation of the floral display by crowding the greenhouses daily, as many as 2,000 persons have passed through them in a day.

We have ninety-five varieties of chrysanthemum, and all of them are pretty good kinds; about twenty of them are prime, and some twenty-five we will discard for reasons such as bearing small flowers, having large yellow eyes, being too loose and weak in habit, or weak in the neck, or too long in the joints, for not forming compact plants for growing in limited space, etc. We don't grow the plants for cut flowers, but as pot plants for conservatory decoration only; this being a public garden we wish to get up as good a show of flowers on growing plants as we can, and keep it up as long as we can.

The plants were grown in pots all summer, the pots were plunged in frames out of doors, and the plants repotted from time to time as they required it. They were removed to the greenhouse early and some extra care given to them.

EXTRA GOOD VARIETIES.—The following list contains the names of the extra good varieties—both new and old—that I have found to be most worthy of growing for the purpose of making a good, bright and pretty show in a public conservatory:

Bride of Roses, Cullingfordii, Edward Hatch, Eda Prass, Etoile de Lyon, F. Thorley, F. Thomson, Golden Wedding, Good Gracious, Harry May, Ivory, Jessica, Lilian Bird, Lilly M. Thomas, Miss K. R. Gordon, Miss M. Wanamaker, Mrs. A. J. Drexel, Mrs. C. Lanier, Mrs L. C. Madeira, Pitcher & Manda, Pres. W. R. Smith, Waban, W. H. Lincoln, Wm. Brown, Vesuvius, Viviand-Morel.

VARIETIES I SHALL DISCARD for reasons given above are:

Ada H. LeRoy, August Rose, Ben Harrison, Catherine Shaw, Edna Craig, Elaine, Frank Wilcox, Grace Hill, Jeanne d'Arc, Joseph Barnard, J. T Duryea, Joey Hill, Louis Boehmer, Mme. R. Owen, Mrs. I. C. Price, Mrs. Langtry, Mrs. W. Baker, Red Robin, Titmouse, Yellow Hammer, Vieil d'Or, Westwood, White Cap, Wm. Reid and W. W. Coles

DAVID C. THOMSON (Head gardener).

Prospect Park, Brooklyn, N. Y., November 8, '94.

A DOZEN FINE CHRYSANTHEMUMS.

I look upon the following varieties as the best twelve chrysanthemums to grow in a greenhouse:

White—Ivory, Queen, Niveus.

Yellow—Yellow Queen, W. H. Lincoln, Eugene Dailledouze.

Pink — Viviand-Morel, Maud Dean, Pres. W. R. Smith.

Crimson or dark—G. W. Childs, R. McInnes, Wm. Seward. E. ASMUS.

West Hoboken, N. J., Oct. 31, 1894.

EARLY-BLOOMING CHRYSANTHEMUMS FOR OUTDOOR CULTIVATION.—Dr. H. P. Walcott, of Cambridge, Mass., and one of the pioneers of chrysanthemum growing in this country, used to grow all the promising early-blooming varieties out of doors, and twelve or fourteen years ago with better success than we have seen elsewhere as far north as Boston. Under date of November 4 he writes us: "I have no early chrysanthemums which for a succession of years have served me well. The most promising of the recent additions is M. Gustave Grimswald, but I can not preserve the newer kinds in open culture for more than a couple of years."

A DOZEN GOOD CHRYSANTHEMUMS.

[SEE PAGE 73.]

I have taken a dozen of the finest flowers, one of a kind, that are in bloom here and had them photographed for GARDENING. Everyone of them is of exquisite form and beauty, and all are good varieties for general cultivation for any purpose; indeed although they are of recent introduction they all are improvements in their class.

1. MRS CHARLES LANIER.—A large, fine, globular, slightly incurved flower of

rich shining yellow color. It has a strong stem and fine foliage.

2. MRS. E. A. WOLCOTT.—A beautiful incurved, ball shaped, light pink flower. The habit is dwarf and robust and the foliage is vigorous and healthy.

3. MRS. G. M. PULLMAN.—A Japanese, reflexed large bloom of fine build with long, drooping, broad petals of an intense golden yellow color.

4. GOLDEN GATE.—Of the regular Japanese type, and it is a strong grower and has fine foliage. It has magnificent flowers of a rich bronzy yellow color.

5. PITCHER & MANDA.—This is a unique flower; the inner part is canary yellow, and the other margin a broad belt of pearly white

6. MRS. JOHN H. STARIN —This is one of the finest of all pure white chrysanthemums. The blossoms are large, of fine build, and the petals of good substance. The plant is of fine habit and the stems are stiff and erect and covered with fine foliage.

7. MRS. HAMILTON McK. TWOMBLY.—A perfectly double flower of large size with beautifully incurved broad, substantial petals, of a white color delicately shaded with pink. For general purposes it is a fine variety.

8. MRS. ARCHIBALD ROGERS.—A large substantial flower, deep rose inside and silvery pink on the outside. It is a strong healthy plant with stiff erect stems and vigorous foliage, but somewhat late in blooming.

9. THOMAS EMERSON.—This is a dwarf sturdy variety with stiff stems; the flowers are large, the center petals incurved, the outer ones reflexed, and the color is Indian red slightly shaded with orange red. It is a fine addition to the dark colored sorts.

10. MRS. GEORGE WEST.—A large, bold, long lasting flower of fine form, with broad substantial incurved petals of a rich rose and pink color. It is of strong, dwarf habit.

11. MISS GEORGENNI BRAMHALL.—A finely shaped, incurved, large flower with broad, neatly arranged petals; the color is bright lemon yellow. The plant is of fine habit and a free bloomer.

12. MRS. JAMES B. CRANE.—The flowers are large and of fine form with broad incurved petals of clear rose pink color. It is of good habit and strong constitution. F. L. ATKINS.

New Jersey.

Orchids.

ORCHIDS IN NOVEMBER.

Cattleya labiata will soon be out of bloom and if the space is wanted for other flowering plants, it can be placed in any out of the way place where a temperature of 50° at night and 55° to 58° by day can be had. It must get very little water at r ot. If kept in a high temperature where *C. Trianæ*, etc. are being forced by moisture and heat into flower there will be danger of *labiata* making a too early start to grow. I should not fear keeping this gorgeous species in a temperature of 45° at night, 50° to 58° by day, provided it were not subjected to sudden fluctuations of temperature as is sometimes the case with houses that come under the head of "cool house."

Cattleya Trianæ will now require attention by keeping up plenty of atmospheric moisture, but water very sparingly in the pot especially if any sphagnum is used in the potting material. About 60° at night and 65° to 70° by day will be right for it, giving only a very light shading on the roof. Arrange the plants so that they can receive all the light available and not much water on the foliage except on very fine days and then early in the morning.

C. Mossiæ will require looking over to remove all the decayed matter in the potting material; also look well to the drainage and wash off all signs of insect pest. I find that tobacco stems on the pipes are a great preventive of insect pests, even orchid scale. Replace them with fresh stems every three or four weeks, if this plan is well kept up there will be need of very little sponging and brushing for scales.

It is now time to select out from your stock of *Dendrobium nobile* and *D. Wardianum* such plants as are ripe and ready for rest for which purpose place them in a house at from 40° to 50°, giving very little water and that only on very fine days. After a few weeks rest they will show signs of buds pushing from the nodes of the stalk and when they have fairly broken through the skin the plant may be placed in heat and in from thirty to forty days will show a lovely blaze of flower.

Cypripedium insigne and *Cœlogyne cristata* will now enjoy all the light you can give them and they too will soon return a blaze of bloom for kind treatment. Lælias that are wanted for bloom at the holidays will now require a nice warm atmosphere with plenty of moisture in the air and to be exposed to sufficient light. Remove them to cool and dry quarters when they get well out in bloom.

Odontoglossums that have their growth well advanced will enjoy a careful and weak watering of sheep and cow manure about once a week till the bulb is well finished; I find it helps to bring a strong flower spike and good quality of flowers.

Utica, N. Y. WM. MATHEWS.

DENDROBIUM PHALAENOPSIS SCHROEDERIANUM.

This poor miserable looking orchid with a name long enough to suit it to the world's end, made its appearance in this country about two years ago, and has proven to be one of the surprises of this age of floriculture. When we open an imported case of it, the plants look dead, and if received in the fall this opinion holds good for six months. But when warm summer weather comes, and the plants are placed in genial buoyant heat with plenty of moisture, in fact a good drenching twice a day, the progress they will make in two or three months is simply marvellous, and the number of flower spikes they will send out from both the old and new growths, show this variety to be in one of the most floriferous of orchids. Because of this recuperative nature our boys call it the "resurrection orchid." Its flowers are lovely and rival in beauty even those of the genus *Phalænopsis* and range in color from delicate pink and white to strong crimson and shades of red; small plants not infrequently carry from thirty to fifty blossoms.

For this lovely orchid I should recommend cool dry treatment in such a manner as to preserve the roots in sound condition during winter, say 50° to 55° by day or night, and keep up sufficient atmospheric moisture to keep the plants plump. In the way of orchids I look upon this dendrobium as the grandest importation for many years. And let us hope that it is not one of those kinds of *Dendrobium* that dwindle away after a year or two's artificial forcing.

Utica, N. Y. WM. MATHEWS.

Aquatics.

KEEPING A BIG FROG OVER WINTER.

A Pennsylvania subscriber asks "How can I keep a big frog over winter? This is no ordinary frog of which we have an abundance, but a huge fellow given to my wife by a friend who got it from Michigan. He now makes his house in one of my outdoor lily ponds, and we are anxious to have him next year. I am not afraid of a little trouble. If you tell me to bring him into the greenhouse, don't omit to say what to feed him on."

We submitted the above to our veteran friend Mr. William Saunders of the U. S. Department of Agriculture, Washington, who kindly replies as follows:

"The best thing to do with the frog is to let him alone in his pond. He will look after himself. Frogs hibernate in winter and do not partake of much food during that time. To try to nurse him in a greenhouse would probably kill him outright. Toads can be kept in a greenhouse all the year round, but frogs are different, they like mud for winter quarters."

GREEN SCUM ON A POND.

M. N., Chippewa Falls, Wisconsin, writes: "I have made a lily pond and stocked it with native white pond lilies and also Zanzibar lilies which grow and bloom finely, but a green algæ grows so rapidly and in such quantities as to make the pond very unsightly, the soil is composed of black soil from the fields and rotten barnyard manure, a mixture of cow and horse manure. Is there any remedy? The pond has been in use two summers."

The only way to get rid of the green algæ in ponds is to skim it out with a scoop made for the purpose. Take a light shallow box of convenient size, tack on coarse wire netting in place of the bottom, remove one end and with this it is not a difficult matter to clean out a small pond and if it is done several times early in the season it will not usually grow enough to be unsightly later on after the foliage of the lilies cover the surface. The common garden toad breeds in shallow water and its tadpoles feed on the green scum that forms on the surface early in the season and which is the first stage of the algæ and it is a good plan to collect as many of the toads as possible and put them near the pond. They breed in countless thousands in my ponds and usually eat up the algæ as fast as it grows. The common water snail also feeds on it and should be encouraged to breed in the water as much as possible. The algæ is always worse in newly made ponds, and does not usually grow enough in old ponds to become unsightly.

Dwight, Mass. L. W. GOODELL.

Greenhouse and Window.

THE GREENHOUSE.

Chrysanthemums are now in their glory, but before the month is out they will be nearly over. What shall we fill up then with? Carnations, callas, geraniums, bouvardias, heliotrope, cyclamen, primroses, begonias, many bulbs, and so on. With most of these it is a case of more room needed.

At this season of the year much artificial heat in a greenhouse is prejudicial

7 1 5 2 8 6 9 11 3 10 4 12

A DOZEN GOOD CHRYSANTHEMUMS

to the plants. Except in the case of hothouse foliage plants, ferns, palms and the like very little shading is necessary on the glass, and when it comes to carnations, bouvardias, marguerites, cyclamen and primroses, no shading at all is required providing the house is a cool and airy one.

Try to change the air in the greenhouse every day. If the weather is fine and mild ventilate freely; if bright but frosty ventilate in the forenoon, a little at a time, and shut up early. In ventilating never open the sashes wide at once, but do so gradually, an inch or so at first, then a little wider once or twice at intervals as the warmth and sunshine increase; and shut the ventilators in the same way, beginning quite early in the afternoon.

Plants recently brought in from outside are apt to drop a good many of their older leaves, see that these are picked and removed; if they fall upon other leaves they are sure to spot or rot them.

While all fast growing plants as callas and cinerarias need lots of water, those that we are simply keeping alive over winter as geraniums, fuchsias and cacti should be watered sparingly. While it is well to keep up a moist atmosphere in hothouses, in cool houses and where carnations, chrysanthemums, daisies and other plants are in bloom don't spill any water about the floors or plants that you can avoid, as damp is so troublesome at this time of the year.

AN OBSTINATE CACTUS.

I have always wondered why so much has been written about the treatment of cacti while resting, and so little about what to do with them while growing; but now I have discovered the reason. It is because they never do anything else but rest. I have had one for seven years that hasn't done a blessed thing but just sit still and take up shelf room. It won't grow, and it is too lazy even to die. It has had lots of good Lake Superior water in summer, and has been kept moderately dry during winter but all to no purpose. Eight years ago it was covered with beautiful scarlet bell shaped blossoms, but it retired from business immediately after, evidently so satisfied with its performance that it didn't consider it necessary to repeat it. It can't be given away because it is sort of an heirloom. Besides nobody wants it. It is not only a thorn in the flesh, it is a whole cactus plant full of thorns. CARROLL W. RANKIN.

Michigan.

Don't blame the poor cactus, it isn't its fault. If it isn't too enervated already give it another chance. Let it rest the coming winter. Keep it in a moderately cool room, rather dry (but not dust dry) at the root, and perfectly dry overhead, it doesn't need sunshine but don't smother it under other plants. When spring comes don't try to make it grow, just let it alone, but give it a little more sunshine and a little more water; putting it to the front in an east or south-facing window will answer. In May stand it out on the piazza or elsewhere with your other plants to inure it to outside air and sunshine and keep it dry overhead. About the end of May when it is thoroughly "hardened off," turn it out of its pot shake all the old dirt away from its roots and plant it out in the garden in an open but sheltered spot, and where water in the event of storms or thunder showers cannot lie in a puddle about it, not even for a few minutes, and never let another plant encroach upon it or shade it. Then let it alone till August, when if it still lives, it should be lifted and potted, and kept slightly moist at the root but rigidly dry overhead. In summer give all the Lake Superior water you want to your sweet peas and cannas, but not a drop to the cactus, the rain from heaven is all the moisture it wants or should get.

CANNAS BY THE WATER'S EDGE, AND IN THE HOUSE.

My cousin has a water lily pond on the edge of which her cannas grow beautifully. I have a fish pond that proved a failure for fish on account of muskrats. I want to make it a lily pond in the spring. The ground around it is very rich and cannas will grow there grandly. I got eleven of the leading varieties of cannas from Mr. Saul last spring and they are now (October 15) blooming nicely indoors. I put the roots into small boxes with as little earth as possible and brought them inside, where they are now covered with bloom; indeed, they seem to fancy the move. When it gets too cold to keep them without stove heat I intend to cut down the tops and put the roots into warmer quarters. L. G. C.

Rockingham Co., Va.

GARDENING

WILLIAM FALCONER, Editor.

PUBLISHED THE 1ST AND 15TH OF EACH MONTH

— BY —

THE GARDENING COMPANY,

Monon Building, CHICAGO.

Subscription Price, $2.00 a Year—24 Numbers. Advertising rates on application.

Entered at Chicago postoffice as second-class matter.

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All communications relating to subscriptions, advertisements and other business matters should be addressed to The Gardening Company, Monon Building, Chicago, and all matters pertaining to the editorial department of the paper should be addressed to the Editor of GARDENING, Glen Cove, N. Y.

GARDENING is gotten up for its readers and in their interest, and it believes you, one and all, to make it interesting. If it does not exactly suit your case, please write and tell us what you want. It is our desire to help you.

ASK ANY QUESTIONS you please about plants, flowers, fruits, vegetables or other practical gardening matters. We will take pleasure in answering them.

SEND US NOTES of your experience in gardening in any line: tell us of your successes that others may be enlightened and encouraged, and of your failures, perhaps we can help you.

SEND US PHOTOGRAPHS OR SKETCHES of your flowers, gardens, greenhouses, fruits, vegetables, or horticultural appliances that we may have them engraved for GARDENING.

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SHADE TREES.—According to Bu. 103, New Jersey Ag. Col. Ex. Sta., the following list of shade trees is arranged in the order of least susceptibility to insect attack, though none are entirely exempt: Ailanthus, Ginkgo, tulip tree, sweet gum, American linden, European linden, small-leaved linden, cottonwood poplar, horse-chestnut, Oriental plane tree, American plane tree, box elder, oaks of all kinds, maples of all kinds, willows of all kinds, American elm, slippery elm, Scotch elm, European elm, black locust, honey locust.

WHEN WRITING to advertisers please state that you saw the adv. in GARDENING.

GREEN-FLOWERED CHRYSANTHEMUMS.—Both in England and France the variety Viviand-Morel has produced sports bearing green flowers, and these sports have been propagated from, giving green flowered plants. Of course its only value is as a curiosity.

"CORNUS TATARICA SPATHII" is the subject of a large and fine illustration in *Gardening World*. It is a shrubby sort, with reddish bark and good foliage much variegated with yellow. The editor remarks it "is the best of the broad-leaved variegated sorts." And so it was before we got the *Cornus macrophylla variegata* from Japan, but it isn't so now by a great deal. We have grown it at Dosoris for several years, and the variegated *macrophylla* (*brachypoda*) is not only better than it but better in its way than any other variegated tree or shrub that is hardy here.

FLOWERS IN FAVOR.—While heliotrope, mignonette, sweet peas, roses and carnations are universal favorites, people are becoming quite discriminating in the varieties, for instance dark heliotrope is preferred, the large Machet mignonette is far better liked than the common form, in sweet peas white, scarlet, clear pink, and black purple seem to lead in favor, in roses dull pinks, purplish crimsons and all washy shades are rejected, and so on. Zinnias of all kinds appear to have lost their friends. Single-flowered dahlias are preferred to double ones as cut flowers, on the other hand the double hollyhocks are liked much better than the single ones.

DWARF SINGLE VARIEGATED FLOWERED DAHLIAS.—We raised a lot of seedlings of the Jules Chretien strain, also a lot of the dwarf *hybrida striata* and what a show we had! In early summer they began blooming nicely, during the very hot weather they stopped for a while bearing perfect flowers, but as soon as the rains came in September, they set to blossoming in great profusion, and we cut more blossoms from those single dahlias than from all the old plants we raised from kept over roots. The plants were quite dwarf and bushy, and many of them had prettily marked or variegated blossoms. Dahlias are as easy to raise from seeds as are marigolds and they always bloom the first year.

CHRYSANTHEMUM DUCHESS OF YORK is the sensational new variety of Europe this year so far as we have yet heard, and most of the English horticultural journals give large illustrations of it. It is of the narrow petalled, intertwisted Japanese order, with very large, deep, full flowers of a yellow color. It was raised in Scotland from seed sent to a gentleman there by a missionary in Tokio, Japan, and was awarded a first-class certificate by the National Chrysanthemum Society of Great Britain last month. The best judges praise it unstintedly, and assert that it is a decided advance in the Japanese section. The flower is 9 inches in diameter and as much deep, and has not a vestige of coarseness about it. Another curious fact in connection with it is that it is the first seedling ever raised in Scotland that has received a first-class certificate from the "National."

IMPROVEMENT IN THE CULTIVATION OF CHRYSANTHEMUMS.—Nine and ten years ago at the chrysanthemum shows of the New York Horticultural Society one of our neighbors was a large exhibiter and took several leading premiums. Many of his flowers were cut from open air plants that had no special care and others from plants that had been lifted and potted and brought into a cool grapery to save them from the inclemency of the weather. The flowers were fair to look upon as common flowers averaged then, but as compared with the blossoms that have been exhibited all over the country during the past three or four years, not one of them would be admissible to an exhibition room. What splendid flowers our florists and gardeners are now raising! But it takes brains, ambition, attention and persistence to do it. No slip shod methods now a days, and that is right.

SINGLE ROSES.—A breeze is blowing up in their favor. What can be more beautiful than the Cherokee rose in the south, or the wild prairie rose in the north? The creeping white-studded Japanese Wichuraiana is a gem in its way. Wild single-flowered pink roses, of home and exotic kinds, are abundant. The blackberry or *multiflora* roses would be very valuable if the rose bugs didn't eat them all up. One of the most charming of single roses we had in bloom last summer was a pure white one called *Pissardii*; it came into blossom late and kept in flower for a long time. There is nothing to surpass the typical white *rugosa* rose with its delicious perfume and splendid foliage. In Europe they have set to raising fine garden forms of single roses, some of their greatest achievements being Paul's single white rose, and Paul's Carmine. A beautiful colored plate of the last named appeared in the London *Garden*, October 27. All that we have named, except the Cherokee rose, are hardy at New York.

A PUBLIC SPRAYER.—In order to overcome some of the worst insect and fungus pests that are ruinous to garden plants, spraying with insecticides and fungicides has become imperative. For instance, the currant worm must be killed or it will defoliate the bushes and in this way ruin the crop, the potato bugs if unmolested will kill the plants long before the tubers are ripe, mildew will ruin both foliage and fruit of the grape vines if unchecked, but timely spraying is a remedy for all of these and many other evils. Now, many of the owners of small gardens haven't time for spraying, besides, they look upon it as laborious, complicated, troublesome, and dirty work, and would rather let their crops go to ruin than undertake the spraying themselves, but they would gladly pay some one else to come and do the spraying for them. To a large extent we sympathize with them, for spraying is dirty work needing thought, carefulness and thoroughness, and it is our mission to make gardening easy, attractive, pleasant and profitable, and that is why we advocate a public sprayer. This public sprayer could be a florist, nurseryman, or jobbing gardener of the village who would have a proper outfit in the way of machinery and materials, and be always ready when called upon to come and spray your orchard trees, grape vines, potatoes, or any other crop, he to furnish everything and do all the work, charging a moderate fee for the job. What a relief this would be to you. The other day we attended a public exhibition of both hand and horse spraying machinery in operation at Jamaica, Long Island, given by the L. I. branch of the Geneva Experiment Station, to show farmers, gardeners and others how to spray, what to spray with, and how to prepare the liquids for spraying and the powders for dusting. It was dirty work, and between fixing machinery and regulating refractory nozzles it didn't impress

us as being a very pleasant operation for amateurs in gardening to undertake. But our neighbor, Mr. P. H. Scudder, a pretty sharp, progressive florist and fruit grower, at once saw business in it, he remarked "the great majority of the people will never do that (spray their crops), but I'll buy a machine and do it for them." In every village and town there should be another man who will get a machine and do the spraying for everyone who wants him to.

The Fruit Garden.

HARDY AND GREENHOUSE GRAPES.

Although we have passed a very dry season with us it has been very fruitful especially with grapes. We have a collection of sixty-five varieties hardy grapes in open ground all of which have ripened perfectly. This in my experience of some twenty-five years never happened before. Among the collection were Lady Washington and Jefferson which produced very large clusters of perfectly ripened fruit. We made use of none of the liquid poisonous preparations. Indeed there was no use for them for we were neither troubled with mildew or rot. The only applications were a light distribution of pulverized sulphur twice during the season. Although all our grapes in open ground are supposed to be hardy I am quite satisfied after a practice of several years there is advantage to be derived from my practice after pruning early in November to lay down the vines and cover them with earth for winter protection and then there are two other factors which I think have contributed to our success: First, good drainage, I find it absolutely necessary in cultivating grapes either in open or under glass to have the drainage as perfect as possible. Grapes require dry feet. We have been equally successful with our grapes under glass (cool house), they have ripened perfectly. They include Black Hamburg, Muscat Hamburg, Golden Hamburg, Muscat of Alexandria, Wilmot's Black Hamburg, Duchess of Buccleugh and Lady Downe's seedling. It has been maintained that Muscat of Alexandria can't be successfully grown in a cool house, but this is a fallacy; we have done it for several consecutive years.

Second, we have as perhaps you will remember on the north side of our estate a treble belt of coniferous trees; they were transplant d when our homestead was established in 1848 and are now from 45 to 60 feet in height, and in addition we have on the north and west and south sides of our entire estate a six feet high board fence. All this protection is invaluable to my garden. Frosts in low grounds 1,500 feet north of us from year to year appear from ten to fourteen days earlier than in our grounds. BENJAMIN G. SMITH.

Cambridge, Mass.

PRUNING GRAPE VINES.

This year's growth of the grape vine are the stems on which fruit is produced next year Hence, in pruning, preserve a supply of strong young wood and cut away the old and weaker growth. A one or two year old plant when s nt from the nursery may have only one shoot, or it may have several. In any event cut all off except the strongest, and cut that back to within two eyes of the base. These two eyes will produce shoots, and when they have made a growth of a few inches, rub off the weak one and let the strong one grow until September, when the end of the shoot should be pinched off to help mature and ripen the wood. Late in the fall cut this shoot back to three eyes. All side shoots and suckers should be pinched off. The second year the strongest shoot from these three eyes should be preserved as before. Side shoots will appear on the vine and as soon as a leaf an inch across has been formed the shoot should be pinched off beyond this eye with thumb and finger. In a short time the leaf will become full size, and mature a bud at its base and send out a new shoot which should be stopped.

The third year two or more canes may be permitted to grow, with branches to compare with the vigor of the vine, and trained in barions ways. A few bunches of fine fruit may also be expected. Trim all old vines in the fall leaving spurs or canes of new wood containing two or three eyes each for next season's fruit. With strong growth at least three-quarters of the vine should be cut away. With good care the vine will give abundance of fruit under almost all methods of treatment and should find a friendly trellis in every village home.

The essentials of grape growing are good varieties suited to your locality, a warm, rich, well drained soil, clean cultivation, severe pruning and in north rn states especially, winter protection

Sparta, Wis. M. A. THAYER.

The Vegetable Garden.

THE VEGETABLE GARDEN.

By this time everything should be up out of the ground and stored away for the winter, for hard freezing does no vegetable any good and at anytime now we may expect frost severe enough to lock the ground and put a stop to working in it with comfort. Full directions were given in last issue for lifting and storing the crops, and we would ask our readers to refer to them.

NOVEMBER 10. At Dosoris all our root crops except Jerusalem artichokes and horse radish are up and in heaps out of doors with a good covering of their own tops over them to keep them dry. The weather all this month has been wet and unsettled; as soon as we get a few dry days we will uncover the heaps and carry the roots into their respective bins in the root house. We have lifted about a bushel of Jerusal m artichokes and taken them under cover, and we won't lift more till the last of the month, when we shall dig up enough to last into January or February. We leave part undug and mulched so that we can get at them at any time we wish. They keep well in the ground, and not very well out of it. Horse radish too we will leave till towards the end of the month. This is not because it is well to do so much as for convenience sake. If it is dry on Monday (November 12) we will start lifting and storing our celery as described in last issue, page 59. Don't handle it in wet weather or while it is wet. Before storing it pick off the decaying outer leaves for if left they are apt to rot pretty soon and spoil the good part of the celery.

After storing the celery and bringing the roots into the root house, we will start with the cabbage and its allies as described in last issue. Cabbage is good and plentiful and cheap around here this fall, and the farmers are selling it about the village for 4 cents a head, and at a little less rate a hundred; in the New York market they do not get as much for it. Curled kale is pretty hardy, and can be left out the longest. Brussels sprouts are next, but we would rather not submit them to more than 4 to 5 degrees of frost. We cannot store them as we do cabbage by burying them in the garden. Pull them up, and strip off the coarse leaves without disturbing the sprouts, then heel them in close together and straight up on the floor of an outhouse cellar, or shed, or pit, in this way keep them green and plump all the time and pick them for use as you want them. Don't store them in your dwelling house cellar, because they exhale a strong and disagreeable cabbage smell in winter.

Having got the vegetable garden ground cleared of its crops, don't leave it in a rough and littery condition over winter. Level down the celery ridges, fill over the cabbage stump holes with a chop from a hoe, and so on. Rake or fork up and remove to the rot heap all old carrot, beet, and other tops, bean vines, and the like. Now cart out the manure on to the land, spr ad it, and plow or fork it in. But never plow or dig ground while it is in a wet pasty condition.

FRAMES.—In the cold frames we have lettuces, spinach, and parsley. Our object isn't so much to rush these into fast growth as to keep them plump and healthy, growing a little and in a condition to get at any time we wish to in winter. A little frost won't injure any of them, but a sharp frost will hurt the lettuces, therefore we must see to protecting the frames enough to exclude frost. How can this be done? By banking around th m with tree leaves, or loam or ashes, and covering over the sashes with straw mats and light wooden shutters, or straw or sedge. In dry weather straw, hay, or sedge is good enough, but in wet or snowy weather they alone are poor covering. If you keep the covering quite dry it is a much more effectual protection than wet material. The nicest kind of covering over the sashes is straw mats, and tongued and grooved ⅝ inch pine shutters, if the sashes are 6 feet long, the shutters should be 6½ or 7 feet.

Uncover the frames in mild weather, tilt the sashes up on one side to ventilate the frames in sunny forenoons of frosty weather. In cold wet or sleety weather, keep the sashes on but tilted up a little. Be most particular about the lettuces, and keep all decaying leaves cleared out, also keep the surface of the ground well stirred and dryish for the health of the plants.

MY GARDEN IN NEBRASKA.

Five hail storms in 1893 destroyed nearly all our fruit trees, and the most severe drouth this season has finished about all but our Progress raspb rry, sometimes called Pione r. It withstood the severe cold of last winter, 28° below zero several times with no prot ction. The plants blossom d and were quite full of fruit, which dried on the bushes; still the foliage retains its greenness, while the leaves on box elder and ash trees crumble to powder in one's hand, burned by terrible hot winds, thermometer 110° in the shade. New shoots have put out, some of which I have just measured two and one-half to three feet long. For hardiness, length of tim in fruit (there are still green berries at this writing, July 31), wi h good yield of finely flavored fruit; this variety stands number one for this portion of the west. Our pears were Sheldons and Bartletts and they have had fair crops for a few years, but they do not possess the high flavor or rich coloring of

the Western New York pears. Our soil is a rich sandy loam. We had the Houghton gooseberry and Dutch currant, but never had but one or two crops from them before the hail killed them. The seasons here are too hot and dry for these fruits. They have to be shaded, mulching does no good.

Crab apples do better than other apples. Ben Davis, Willow Twig, and Jonathan are among the varieties mostly grown. The wild plum found along the streams are mostly cultivated, tame plums do not fruit well. The sour cherry does best of any fruit.

In strawberries Crescent, Wilson and Shaupless are mostly cultivated. We tried Snyder and Kittatinny blackberries, but they get killed down every winter. Concord grape does the best of any.

The grim and terrible destroyer, hail, left not a shrub or vine. Portulacca is about the only plant that thrives in this dry sandy soil without constant watering.

In 1889 I had a gorgeous bed of geraniums, one mass of bloom, and single plants would fill a bushel basket.

In vegetables, we have a few kinds left from the drouth and hot winds, having made gardens three times to have it destroyed. The Crystal White wax bean and Red Kidney have withstood the drouth wonderfully. The Arlington beet (Rawson's) we find the best of several varieties tried. Cool and Crisp cucumbers and White Perfection have excited our wonder, as the vines have wilted but little in the heat (from 96° to 110°) and they were full of blossoms and fruiting well, although they had received no water, but we kept the weeds down and a fine soil about them—shallow cultivation—while our neighbors who practice deep cultivation and watered frequently have lost all theirs. The American Wonder pea stands first for earliness, abundance and resisting drouth of any we have tried. The Polaris potato keeps its reputation for all that makes a first-class potato, but it was smaller than usual this season owing to lack of moisture.

MRS. FRED. C. JOHNSON.
Hastings, Neb.

EARLY HOTBED LETTUCE.

A leaf from my note book may interest "Ignoramus," (see page 54) as having made preparations for a hotbed, we all know he is anxious to get in operation as soon as possible.

The third week in January this year, I sowed lettuce seed (Boston Market and Belmont Forcing) in a small hotbed in a very sheltered location. Kept well covered at night and in stormy weather. March 12 I set out the plants in a larger bed in a much more exposed situation and used the same care in covering and banked heavily around the bed with fresh manure. About the third week in April we commenced using some of the finest lettuce I had ever eaten. The Belmont Forcing came on a little later than the Boston Market, which prolonged my crop very satisfactorily. H. R. V.
Philadelphia.

THE WHITE EGG PLANT.—Noticing in GARDENING, page 44, that E. R. finds the large white egg plant poor and discarded it because of its quality I send you a sample of the true New White which originated here in Georgia, and which I find superior in all eating qualities to any other. I regret it is so late that the eggs are too old to eat, and also to show their beautiful white color, but they serve to show that they are not small, with me they run above the average of the New York purple. E. R. must have been served like me, had some of the old white seed put on him: Its fruits are small, about the size of a goose's egg, and used only for ornament. I dug mine all up when I found what they were. As it is now so late and most of my crop of egg plants has been gathered for seed these I send are not as fine as those that have been harvested. A. W. SMITH.
Americus, Ga., Oct. 19.

Miscellaneous.

THE BEER PLANT.

Mr. F. H. of Davenport, Iowa, writing to us a little while ago about "the California beer plant," says: "About thirty years ago my mother had a few seeds sent here to her from San Francisco. They came on a piece of paper, and when dry looked a good deal like tomato seed, when wet they looked more like fish spawn. We took a few of these seeds and put them in sweetened water in the morning and at noon the drink was ready for use. This made a very delightful drink for summer, but was not intoxicating. The seeds multiply very rapidly when let stand for any length of time."

Knowing that this could be no kind of garden plant, but believing it to be a species of ferment, we submitted the case to the Agricultural Department at Washington. Prof. Galloway kindly replies:

UNITED STATES DEPARTMENT OF AGRICULTURE, DIVISION OF VEGETABLE PATHOLOGY.
WASHINGTON, D. C., April 13, 1894.

MR. WM. FALCONER, Editor of GARDENING, Glen Cove, N. Y.

Dear Sir:—Yours of April 4, to Mr. L. O. Howard, relative to the "beer plant," has been handed to me for reply. It is probable that the substance referred to is similar to the "mother" of vinegar, as you suggest. Prof. Marshall Ward, of London, has published quite a comprehensive paper upon the "ginger beer plant" in the Transactions of the Royal Society of London. This "plant" is a combination of yeast and one or more microscopic organisms, which when united and added to a sugary solution will cause fermentation. The ferment is used in conjunction with ginger and produces the celebrated "ginger beer."

It is possible, however, that the specimens your correspondent has described are not the same as the ginger beer plant. There is another ferment of a similar character which has been used for a great many years by the mountaineers of the Caucasus region, and which is known as "Kephir." This substance is in the form of small brown grains, and when placed in milk causes it to ferment. If left long enough the drink becomes very intoxicating, but if the fermentation is allowed to go on for only a short time it gives rise to a very refreshing drink.

For a long time this Kephir was not known from any other locality, but about three years ago Mr. Chas. L. Mix published a paper in the Proceedings of the American Academy of Arts and Sciences, in which he described a form of it occurring in this country. The material examined by him came from New Jersey and Ontario, and he describes it as being in the form of small granules, of a dirty brown color, and showing on their surfaces many lobes or fissures, and reminding one of dirty gum arabic. The Ontario specimens were sent by Mr. Dearness, under the name of "California bees' beer," with a note saying that the housekeepers in Ontario keep a self-sealing jar "half filled or more with sweetened water. The fermented product is drawn and drunk for a tonic."

This substance is stated to be a ferment composed of a yeast and causing the production of alcohol, and it has been mainly used in fermenting milk. Inasmuch as it acts, like any yeast, in the presence of sugar, there is every reason for thinking it will act also in sweetened water. It is perhaps this substance that your correspondent has in mind. If so we would be glad to have him send us some specimens of it.

Mr. Mix also says that in Germany and Russia Kephir has become a celebrated drink, being used by persons of weak digestion, dyspeptics and children. As the milk is partly peptonized by the ferment it is more easily digested.

Very truly, B. T. GALLOWAY.
Chief of Division.

PREPARING BONE FERTILIZERS.

Rajah, Hastings, Michigan, asks: 1. "Will bone meal ground from dry bones and mixed with hard wood ashes make a complete fertilizer for a vegetable garden, and if not, what should be added to it?

2. "Will coarse bone decomposed under the following treatment make a complete fertilizer? Put in a barrel or pot one layer of hard wood ashes, one layer of bone and one layer of unslacked lime until the barrel is full, then soak with water.

3. "How much bone meal can be used in a garden of one-fifth of an acre?

4. "How can the fleshings from hides in a tannery be best utilized as a fertilizer in a garden?"

1. Yes, mix the bone meal and wood ashes in about equal parts by weight in a water-tight tank or barrel; add all the water the mixture will absorb and cover the top with land plaster or loam. Let stand two or three weeks and keep wet.

2. We would not use caustic lime as a reducing agent for "coarse bone." In the box or barrel spread a layer of ashes, then one of bone, cover with ashes and give a light coat of land plaster followed by two or three inches of peat, muck, loam or charcoal waste. Add all the water the mass will readily absorb and continue the layers until the vessel is nearly filled. Then cover with 6 to 8 inches of peat or other absorbent. Keep well supplied with moisture. After a month or six weeks shovel over the materials, mix with stable manure or rich compost and use upon the land. Unless one has a pit in the ground lined with wood or cement we do not advise the use of caustic lime for the reduction of bone.

3. From 200 to 400 pounds or even more bone meal may be used on the plot.

4. We would compost with peat or loam, stable manure and unleached wood ashes. FRANK W. SEMPERS.

THE GOLDEN ALSTROMERIA (*A. aurantiaca*), What an elegant cut flower its blossoms are! A bouquet started two weeks ago and supplemented with unfolded buds as they came along on the plant, is yet (October 14) in splendid shape. W. C. E.
Chicago.

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. . . . **GERMANTOWN, Philadelphia, Pa.**

PAEONIES.

I have a peony whose flowers are rose-colored, edged with white, and are large and grand. What is the proper way to divide old paeony roots? I took up some clumps yesterday that were a yard in diameter and as deep. In the middle the old roots were dying, and old flower stems seem to have rotted down deep into the roots. I divided the buds and cut off most of these old big roots. Was that right? [Yes. Lift the whole clump, then divide it much as you would tear a big dahlia root asunder. A digging fork is better for this purpose than a spade, it doesn't cut the tubers so much. When the clumps begin to die in the center it is time to lift, divide and replant them.—Ed.] L. G. C.

Virginia.

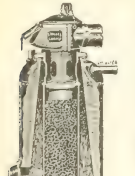
THE VARIEGATED-LEAVED LILY OF THE VALLEY.

I have one. It came up as a spot in my bed of the plain-leaved sort, and like the type, has white flowers. I took it up and planted it by itself and it has continued to grow and spread slowly, and is quite pretty. [Not uncommon in cultivation. It originated in other places in the same way as yours did. And in Dutch and other catalogues we find it advertised.—Ed.] L. G. C.

Virginia.

I find GARDENING worth more to me than all the other gardening periodicals I have ever seen. ALBERT SALISBURY.

Whitewater, Wis.



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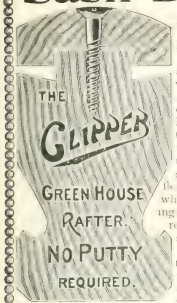

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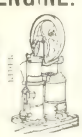

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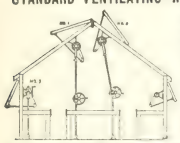

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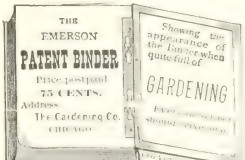

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GARDENING

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FLOWER GARDENING IN THE CHICAGO PARKS.

FLOWER GARDENING IN CHICAGO.

The accompanying engraving, shows a part of the flower garden in Washington Park, Chicago. The plants and beds in this expanse are all in sight from an encircling driveway, and visitors are at liberty to walk among them on the well grown turf that carpets the entire space, a carpet at once pleasant to the eye and agreeable to the foot. For here the familiar "Keep off the Grass" is not seen. Supt. Kanst says that a good lawn is not injured by being walked on unless pedestrians follow a regular route, thus treading a path. To obviate this he disposes the beds so that visitors are attracted in all directions, and not a trace of a path is seen throughout this tract where thousands of people wander at will all summer long.

These lawns are made by sowing four bushels of seed to the acre about April 1, the idea being to sow when the seed will germinate and begin to make growth at once. The mixture generally used is one-half Kentucky blue grass and one-half red top, with 2 pounds of white clover to the bushel, but this formula is varied to suit conditions. If very quick results are desired, as in places that will be partly shaded later in the season, then one-fourth rye grass is substituted for half of the blue grass, again, if expenses must be kept down, one third Kentucky blue grass and two-thirds red top with or without the clover, will in the end make as satisfactory a lawn as the half and half mixture. The final result of either of the above combinations is a blue grass lawn, for the vitality of this variety enables it to crowd out and outlive anything that is sown with it. But, as this takes time, the quick, strong growing rye grass and red top serve to clothe the ground acceptably while the blue grass is becoming established. Sowing thickly is the strong point made by the park authorities. Lawns like the one shown in the engraving are kept in condition during summer by liberal watering with automatic sprinklers and by mowing once a week or once in two weeks as the growth requires.

In the immediate foreground of our illustration are seen glimpses of American agaves and cannas that are in beds near a sun-dial made of growing plants—a piece proving so attractive that it is protected from too close invasion by a chain fence supported by iron posts. The ribbon bed beyond it encloses a space nearly 100 feet in diameter, and the loops that encircle each vase are 18 feet across. The ribbon varies in width from three feet in the middle of each wide scallop to eighteen inches at the point where the band crosses to form the loops around the vases, and the same width is continued for the loops themselves. This bed is filled entirely with ageratum Cope's Pet grown from cuttings and planted out from 2 and 3-inch pots about May 20. They begin to bloom after three weeks and continue in bloom until frost cuts them off. They are kept well watered, and when they get ragged or grow too

tall they are sheared to a uniform height. Bands of the same ageratum are sometimes used here bordered on each side with a single line of *Iresine Lindeni*. The agaves used singly in the middle of each broad scallop of the design are *A. Americana* in pots, each plunged in the middle of a circular bed three feet in diameter of an open ring of *Echeveria metallica* on a ground of *Sedum acre*. As the engraving plainly shows, the foundation of the scheme is a grassy mound, and to form levels for the Grecian vases to stand on, terrace-like beds, or pedestals five feet square are built after the same plan as the globe and vases, and planted on the top with purple leaved oxalis and on the sides with *Sempervivum soboliferum*. The vases are alike in size, construction and planting. Each one is six feet high and four feet in diameter. In each an American agave is planted. The body of each vase is planted with *Echeveria secunda glauca*, which shows light in color, and the decoration and handles, showing dark, with *Sempervivum soboliferum*.

The globe, the crowning feature of the design, and of the mound, is twelve feet in diameter and rests on a circular pedestal twelve feet across that slopes from two feet in height at the sides to three and one-half feet in the middle. It is planted on the sides with the purple leaved oxalis and on the top with *Othonna crassifolia*. On the globe the water is represented by *Echeveria secunda glauca*; the continents and islands by the purple oxalis, the equator by yellow, and the meridians by red alternanthera. The globe has been used several years and sometimes the equator and meridians are made with *Sempervivum tectorum*.

Behind the vases to the left of the globe, on top of a sloping bank twelve feet high a big showy bed of cannas faced with *Caladium esculentum* can be seen, and near it part of an irregular and effective belt of hardy herbaceous plants such as sunflowers in variety, hollyhocks, phlox etc. All of these plants are seen against a distant mixed plantation of deciduous trees, mostly linden, ash and maples, that are already well established. Two taller trees to the right of the globe are silver maples. The handsome round topped tree standing alone still farther along, to the right of the last vase on that side, is a nice specimen of English elm. On the sloping bank of the big mound, just below the two silver maples, is an elaborate carpet bed in the form of a rug 32 feet long and 16 feet wide carefully worked out in echeverias of several varieties as *E. lanceolata*, *E. rosea*, and *S. sobolifierum*, red and yellow alternanthera, thyme, alyssum, and oxalis. In making the globe a frame work of ribs of wood run just as the meridian lines do is the beginning. These are sawed out by a pattern and fastened together at the two poles. Around this frame, parallel with the equator, common fence wire is put on in regular rows one inch (or a little less), apart and fastened to each rib with staples.

The globe, being so large, is made secure in its place by a strong timber running down through the south pole and passing on through the pedestal into the firm earth beneath—like a long, well set fence post. The pedestal is made in much the same way except that the upright posts of the frame are set in the ground and common lath, (instead of wire) are nailed on, leaving spaces one inch in width. A sufficient space at the top of the globe is left unwired until the soil is packed in up to that point, after that wiring and filling go on little by little until the globe is a solid ball of earth. The soil used is heavy clay loam with a little sand and it is made very wet and then tamped into position. The vases and all the pedestals are filled in the same way.

The equator and meridians are planted and after being outlined with pegs and string, the continents and oceans are also planted. The planting is done by the aid of a small pointed stick with which holes of a suitable size for the various plants are make in the spaces between the wires and into each hole, as made, the roots of a plant are dexterously twisted, the soil pressed closely about them, and so on, until "the mighty ocean and the pleasant land" are all simulated in growing things.

The plants are set to barely touch each other, which allows some room for growth, but sometimes they pile themselves up in odd groups that give a somewhat stormy appearance to the ocean, and corrugate the vases in a rather decorative fashion.

The "world" is watered as any carpet bed would be, possibly requiring a little more than the average amount of moisture to make up for the rapid evaporation due to the exposed position. The vases are treated likewise, the water being usually applied, in their case, by means of a garden syringe that is used daily. Watering with a fine rose nozzle on an ordinary hose is, however, not at all injurious to plants in such positions. The blossoms of echeverias are generally kept cut from the plants, although in some cases they are left and prove quite ornamental. After frost ends the out of doors flower season the plants are all removed from the globe, vases, pedestals and beds of this design; the soil is worked out of the vases and they are stored indoors until spring, when they are repaired, refilled and used again wherever needed. The globe, however is usually left in position and in spring it, also, is repaired and refilled. So that during winter the big globe stands a dead world—something like our moon—surrounded by neat, but empty beds, that show the ground plan of the design seen in our illustration.

Chicago. F. C. SEAVEY.

HOW I MADE MY LILY BED.

There is a great deal in luck of the right kind, and I hope for luck in my lily bed. The land I have to deal with has no inborn luck, however, even when well broken will not produce handsome shrubbery or flowers. Or, as our horticulturists love to call it, well grown specimens. I have had lilies for years planted among shrubbery and these have rewarded me with a few flowers to each other bulb, but they were not well grown specimens. They were fine, however, as generally seen and would satisfy most people. But this autumn I became dissatisfied after reading GARDENING and learning what really well grown lilies should be, so I decided to find out what luck I had, if backed by thought and investigation. Besides I had a strong desire to make the *auratum* lily a permanent institution on my grounds. My luck heretofore was to lose them very soon after blooming once.

What I did to accomplish my object was this: I selected for a site of my lucky lily bed the north side of a hemlock and spruce, both medium size trees, and laid out a crescent shaped bed, twenty feet between the horns and six feet wide in the center. After saving the turf taken up and top soil, I carted away all the soil down to a depth of two and a half feet. In the bottom I put six inches of drainage, broken stone and brick would have done, but I had a lot of refuse broken coke that formed a nice drainage in this case. After leveling this I put my sod inverted on top of this and then about six inches deep of half rotten horse manure mixed with a little air slacked lime. Rotten cow manure would have been preferred but could not be secured. I now mixed the top soil with a year old compost composed of turf and cow manure, about one-third compost to two-thirds soil, this filled my future lily bed to within six inches of the surface, levelling it off well and on this was put near two inches deep of clean sand on which the bulbs were planted. In the center was planted one bulb of *Lilium giganteum*, encircled by twelve *auratum* lilies, in front and at the sides of those I planted one dozen each *rubrum*, *album* and *longiflorum*. In the edge of the bed but a foot from it were planted fifty *candidum* lilies, which completed my bed, except at one horn of the crescent there was a hole from a deutzia that had been removed and this was filled up and planted with six *superbum* lilies. The bulbs are all a foot apart in the bed except the giant which has a clear space of 21 inches in every direction.

After the bulbs had been planted sand was put on until they were well covered, except the *auratum* bulbs, which were covered with about a quart of crushed charcoal and then sand. I did this as an experiment and because these bulbs were not what I would call first-class, one bulb was decaying when received. I have never seen this suggested but it may be old or useless. I now filled in my bed with fresh soil from the woods hauled from swags where leaves had rotted; this soil I think was about half leaf mould. This top soil was heaped up a foot over the bulbs to remain until spring, when the surplus will be removed and three hundred pansy seedlings from my cold bed will make a summer mulch for my lilies. Now what "luck" you think I should have with my lilies, Mr. Editor, and how do you like my selection? I have gone into detail for the benefit of those who know less than I do, and to invite your criticism. Is the *Lilium giganteum* a success or of only doubtful utility as an ornamental lily?

Tracy City, Tenn. E. O. NATHURST.

You deserve good luck. But as we have tasted the joys of extravagant success with *auratum*, and, following, the pangs of failure, we have learned to criticise mildly, and be happy with moderation. But *rubrum*, *album* and other varieties of *speciosum* seem to be invincible, and surely they are lovely. *Giganteum* is still in the experimental stage.

FLOWER GARDEN NOTES.

The suggestion of the editor of GARDENING to pot asters as they are coming into flower was followed with the most pleasing success. Stood upon the piazza they kept bright and fresh almost or quite as long as those left in the ground. In this way the crown aster with its white center was especially admired. The Blanche Printanière (white spring) from Vilmorin, called by them the earliest of all asters, though not tried in a way to test its earliness was very satisfactory.

Ageratum luteum is too dull a yellow; "dirty white" is what several observers called it; it was hardly dwarf with us, still it was fresh and growing when a white variety in the same balcony box was blasted and withered from storm. Not pretty enough to keep, we decide,

HELIANTHUS MULTIFLORUS FL PL.

when we can have the pure whites and blues. But ageratum Forget-me-not, a novelty with pale blue flowers, is very interesting on account of its curled, crisp and glossy foliage and its upright growth. "A little uneven in height," as the introducers say of it, but worthy of cultivation.

The double perpetual carnations of the Alegatiere and the Chabaud strains sown under glass later than the Margarets, and planted out when large enough, were about equally early, and both nearly as early as the Margarets. There were but few singles in either and they both present some delicate shades not observed in the Margarets. A strain of perpetual double yellows also come into bloom a little later than the others and has been very fine. Two other new strains, the Malmaison Margaret and the New Margaret were sown, both a little more vigorous than Margaret, the former producing fine flowers of various shades, scarcely distinguishable from Margarets except perhaps in being a little larger. The New Margaret being later has not bloomed enough to warrant description, but will have a chance in a deep coldframe. These several strains being all equally easy to grow with the Margarets appear equally worthy of culture by the lover of summer carnations, but the yellow strain should be sown earlier if possible. They may all be sown and receive the first transplanting in a box in a sunny window of the dwelling; they will even do without transplanting in the house if not sown too thickly. I had a few Margarets from a greenhouse well started in pots, hoping to get early flowers. They were not much earlier and not as satisfactory as my own seedlings raised in the dwelling. I mention this not to discourage attempts at earliness but to show how easily carnations may be had without a greenhouse. Countess of Paris, a yellow perpetual, has not bloomed yet (Nov. 8).

In the summer of 1893 I sowed border carnation seed and wintered the tiny plants in cold frame; they have grown vigorously but only one of them bloomed. I supposed they should be sown in spring to ensure bloom the next year. Will it be safe to leave them out through the coming winter in a sheltered garden? [While we have had them live over winter if protected with leaves and evergreen branches, it really paid us to lift them in fall and plant closely in a cold frame over winter, planting them out again in April.—Ed.] Of the greenhouse carnations early started cuttings of The Stuart, E. Reynolds, Wm. Scott, T. Cartledge, Lilian Abbey, Dr. Smart and Diaz Albertini have given nice flowers in the open air.

Vilmorin's new strain of fancy variegated single dahlias gave large fine flowers in single and mixed colors. But many of the buds were abortive. Is that always so? [During hot summer weather it is quite usual.—Ed.]

Torenia Fournieri started in the house, transplanted to the open ground and potted when coming into flower has been delightful and much admired, and is even now in bright and quite full bloom. It needs plenty of water.

Cardinal we thought the brightest of all the red and scarlet varieties of Lobb's nasturtiums; the foliage was also the finest of all, being quite dark.

The variegated Japanese hop growing from seed the same year was much admired, both on a trellis and trained about the bare trunks of trees.

Is it generally known that *Viola cornuta alba* and *V. c.* Mauve Queen have a delicate sweet fragrance? They have been fine for bedding and edging. E. R.

Plainfield, N. J.

A FEW GOOD HARDY PERENNIALS.

[*A paper read before the Fairfield, Connecticut, Gardeners' Club, by George Donald, and revised and elaborated for* GARDENING.]

There are so many fine hardy perennials that instead of restricting myself to a dozen individuals as I had at first intended, I have included a dozen sorts with some of their nearest relatives. The dozen I have chosen are lily-of-the-valley, pæonies, irises, pyrethrums, coreopsis, delphiniums, gypsophila, bellflowers, sunflowers, funkias, phloxes and anemones.

This selection is conspicuous by the absence of such deserving and popular sorts as columbines, poppies, gaillardias, bleeding heart, fraxinella, pentstemon, upright clematis, everlasting pea, monkshood, pinks, monarda, candytuft, asters, and others, together with the host of hardy bulbous plants like tulips, narcissus, lilies and so on. Because I cannot include them all in my dozen does not detract in the least from their merits, if you have some in your garden give them too.

Hardy plants are the life of a country garden; the more there are of them and the better the selection, the brighter is our garden, the fuller is our house of cut flowers, and the happier are we for having them. Hardy herbaceous perennials are the class of plants whose roots live over winter year after year, but whose stems die down to the ground every fall like the columbine and delphinium. Our selection of them should extend from the earliest spring from the time of snowdrops, crocuses, daffodils, and white rock cress, on through spring, summer and fall, till the blue mist flower, white and purple Japan anemones, toad lily, Maximilian's sunflower, Pitcher's salvia, Siebold's sedum and mountain fleece bring us up till frost again.

Now it is nonsense to think that all one has got to do with hardy perennials is to stick them into the ground and then they will go ahead growing and blooming forever without any further care, for it isn't so; it is with them as it is with roses or greenhouse flowers to have them good we have got to attend to their wants. As a rule they like good ground that has been unfastened quite deep and freely fertilized, and while most of them prefer an open place to grow in and sunshine, they object to a scorching hot border exposed on all sides to the sweep of the wind. Another thing, to have them do well, don't let them stay too long undisturbed, that is don't wait till they begin to die out and starve before you lift, divide, and replant them into freshly prepared and enriched soil. You needn't make up another border for them, the one they are in will do well enough if you just lift out the plants, dig the spot deep, wide and fine, and replant. Young vigorous

plants always bear the finest flowers. But there some plants as gypsophila, fraxinella, and asclepias that we should never disturb the roots of after planting them.

Herbaceous plants should be set out early in spring or early in the fall season, say after the first rain in August or September. Early planting in spring gives them a good chance to make roots and get a start before warm summer weather sets in. Early fall planting gives them an opportunity to get rooted before winter comes, and thus they are less liable to be heaved out by frost. Late blooming or late growing plants like phloxes and sunflowers should be transplanted in spring, and early maturing ones like oriental poppies, dicentras, and spring bulbs, in fall.

In propagating them from seed we should strive to raise as many of them as possible in fall. Nature teaches us this. Observe the multitude of delphinium, hollyhock, foxglove, pyrethrum, centranthus, and other seedlings of perennials that spring up about the old plants in August and September. These make blooming plants the following year. But we may also raise them in spring. We will now consider the few sorts that I have selected.

LILY-OF-THE-VALLEY comes in bloom about the second week of May. It grows in partial shade or in the open garden very well, and if we want big fine flowers we should give it good, rich ground, and a light topdressing of rotted manure or leaf soil every winter. The old Solomon's seal (*Polygonatum multiflorum*) is related to the lily-of-the-valley, and loves the same treatment, but as it is a much taller plant it should have head room. The Japanese species (*P. Japonicum*) is also worth growing. And if you have a half wild, partly shaded place, where the ground is good, rich and moist, dig up and place a lot of wild spikenard (*Smilacina racemosa*) in it, together with spring beauty, wood anemones, dog's tooth violets, true anemones, columbines, trilliums, etc., letting them all run wild together, and see what a charming flowery spot you'll have.

PÆONIES are among the most showy, hardy and easy to grow of all garden flowers. The old-fashioned crimson flowered one and the narrow leaved (*tenuifolia*) one are among the earliest of the herbaceous sorts to bloom. About the time they are pretty nearly over we have the great array of pink, rose, and crimson colored flowered ones, known as the Chinese section and which are now the commonest of all. Perhaps the gorgeous tree pæonies which are so hardy and beautiful, and bloom at the same time as the old crimson one, belong to shrubs rather than herbaceous plants, however, don't omit them, they are too good to pass by.

IRISES begin with the bulbous little beauties like *reticulata* in early April, and last through the spring and summer till the season winds up with *Kæmpferi* in July. Among the most desirable are the spring irises (*Iris pumila*) of which there are several blue and yellow varieties; the German irises, which are the commonest, and the ones we find in most everybody's garden in May and June; the fragrant and nearly white Florentine iris, and the large pale blue iris called *pallida*; then the gorgeous, moisture loving Kæmpfer's irises whose flowes often measure from six to eight and sometimes ten inches across. All these irises grow well in good garden soil, thriving in the herbaceous border, or in open outside patches in the shrubbery borders that are not impoverished and dried up by the encroaching roots of trees or shrubs. Kæmpfer's irises in particular should have rich deep soil to gow in. Of course if we could flood their roots with water once a day in their early growth and till they have done blooming, as is sometimes done, we could get finer blossoms than from ordinary garden culture, but really we can get very fine flowers from the common border.

PYRETHRUMS are lovely little flowers in early summer. We have single and double-flowered varieties, and both ranging in color from white, through the tints of rose, pink, and crimson. The fine double forms are increased by division, the semi-doubles also should be increased in the same way, but from seed saved from double flowers we can raise a good many semi-double ones. The single kinds are increased mostly from seed. They are quite hardy providing the ground they are growing in is raised enough above the ordinary level to completely shed water in the case of storms. The single ones are generally hardy enough without extra care; indeed they self sow themselves quite freely, the seedlings coming up in the fall. *Pyrethrum uliginosum* is a large white daisy-looking flower, blooming in late summer; the plant grows four or more feet high in good ground, and bears a large crop of ox-eye daisy-like blossoms, that are excellent for cutting, and as the plant blooms so late in the season it is doubly valuable. But it is a very different appearing pyrethrum from those that bloom in early summer. The double-white feverfew common in gardens and to which the bedding plant golden feather belongs should have the protection of a frame, pit or cellar in the winter, for it is not quite hardy with us.

COREOPSIS has considerable of a season; two that bloom in early summer are *lanceolata*, which keeps in bloom more or less all summer, and *grandiflora*, which is a bigger plant than the last and has larger flowers. After the flush of these is over, say in midsummer, two upright growing tall species named *verticillata* and *delphinifolia* begin to bloom continuing most all summer. All are very easily grown. The first two should be increased from seed, the last two from division or seed.

DELPHINIUMS are indispensable and afford us the greatest plenty of blue blossoms and variety in blue color we get among our flowers. We have fine double flowered sorts as well as singles, and both may be had particularly good from seed, to get a fine strain being the main point. Lemoine's hybrids are as good as any. They grow from four to six feet high. If we wish for a dwarfer one, try *grandiflorum*. All come readily from seed and good well treated plants bloom the first year from seed; in fact *grandiflora* blooms with the readiness of an annual. A common garden border suits them very well. The position should be open. When the tall kinds are in active growth they should be staked in time, don't wait till a wind and rain storm smashes them down before tying them. Generally one neat, stout stake to each stool is enough. It should not come any higher than where the flowers commence, and it should be so hidden in the plant, and the tying so neatly done as not to be noticed at a casual glance.

GYPSOPHILA PANICULATA is almost indispensable especially where airy blossoms are needed for cut flowers; and happily it grows well and blooms profusely. It is raised from seed. We don't propagate by division because its roots have a thick tap-root appearance and penetrate deep down into the ground without speading at all like a sunflower or phlox. *Euphorbia corollata*, a native plant, which blooms a little later, is also useful in the same way, but it has a stiffer habit. The double flowered *Achillea Ptarmica* and the double flowered achillea named Pearl have white blossoms and are grown in large quantity for the same purpose, and fortunately both are hardy, last long in flower and are easily increased by division.

OF BELL FLOWERS or campanula we have several worthy kinds. Among the most useful are the peach leaved (*persicifolia*) which has blue and white flowers, and there is a double flowered form of the last. They bloom in early summer, make a fine show, and are capital for cutting. Coming into bloom after they are gone and lasting late through the summer are the large open flowered forms of platycodon. The tall one is called *grandiflorum*, and the dwarf one *Mariesi*. There are blue and white varieties of the first named, also a double white one. All the single sorts are easily raised from seed which the old plants ripen in abundance. They make tuberous roots, hence are not readily divided. They will grow in any open border of good soil.

SUNFLOWERS begin blooming about midsummer and last in flower till October. The early one is the now common *Helianthus multiflorus* and its double form, also the larger single variety called *maximus*. They grow in great force, bloom fine, and the flowers last well when cut. They have to be increased by division, an easy matter, as they bear great mats of divisable root material. Another beautiful and brighter species is *H. lætiflorus*, it is finest in August, but although grand in the garden the flowers don't last well when cut. In September the tall, elegant fountain sunflower (*H. orgyalis*) is in bloom; and in October, is also the tall and very fine *H. Maximilieni*. The two should be increased by division, in fact *lætiflorus* spreads considerably.

OF PLAINTAIN LILIES OR FUNKIAS the only one worth considering at the present time is what we know as the white day lily and which blossoms so beautifully in August. It delights in good ground and a moistish spot, plenty room and slight shade from sunshine. It should be increased by division. It, however, may also be increased from seed. There are many other sorts like *Sieboldii*, which has big glaucous foliage, *cordata* of which there are many varieties, two or three being variegated leaved, and the narrow leaved species which is the latest blooming of all.

PHLOXES are so many and good they should have a paper all to themselves. They begin in early spring when the moss pink (*Phlox subulata*) is in flower. We have several summer bloomers too, and in July we get to the fine race of garden sorts that are so useful and cheerful, and remain into September. These last like good ground and should be lifted, divided and replanted into fresh soil at least every second year. Of course while they seed with more or less freedom and it is an easy matter to raise them from seed, we can only hope to get the true-to-their-mother varieties when we propagate them by division or cuttings.

AMONG ASEMONES I will restrict myself to that lovely Japanese species (*A. Japonica*) which is a God-send to us in September and October, either for use in the garden or in the vase. There are white, also rose-purple colored single varieties and

NEW CHRYSANTHEMUMS

semi-double purplish ones. They are a little fickle in their behaviour, however, doing better in some places than in others, but where they thrive well they grow with much vigor, getting to be from three to five feet high sometimes, and always, in their season, full of blossoms. They are increased by division of their roots; the fleshy roots are cut into pieces and inserted in sand either indoors or in a frame, or bed in the garden.

THE LAWN.

Having raked off the roughest of the tree leaves we are now prepared to apply a little top dressing. This is a light coating of loose manure, either fresh horse manure from the city stables, or rotted, well broken up farm yard manure preserved on the place. This dressing may be put on any time after the middle of November, but as there is so much lawn to go over here we wait till a frosty spell of weather, when we can drive the loaded wagons on to the grass without cutting into the turf. This saves labor, and we do better and cleaner work. But where there is only a small lawn, or it isn't necessary to drive the wagons on to the grass, don't wait for a frosty time, but spread the top dressing at once. It is nice to get it on before snow comes. Put it on about half or third as heavy as you would on to cultivated garden lands.

Chrysanthemums.

RAISING NEW CHRYSANTHEMUMS.

The raising of seedlings is a source of unbounded pleasure and hopeful anticipation to the amateur. He sows the seed in early spring, saves and plants every little seedling, watches over them in summer, attending to their wants and helping them by staking, disbudding and protecting, and if need be a little extra stimulating to induce them to do their utmost. The excitement and pleasure when the flowers are developing, from the time they begin to show color until fully expanded, is immeasureable. To the amateur every opening blossom is a prize, but the commercial florist has to face the cold facts that on an average only one seedling in 500, may be in 1000, is an improvement on existing varieties, or worthy of being retained, named and disseminated. Many large, fine and promising buds that commence to unfold and from which we expect something great, to our sorrow turn out large disappointing singles or ragged blooms of an unsatisfactory color, while some of the smaller and at first unnoticed buds grow and swell slowly, developing eventually the best of blooms. My experience has been that in a lot of seedlings the best are to be found among those opening last, although the next season they may come earlier. When carefully tested this may be on account of the larger number of petals which the good ones have, causing them to take longer to unfold than do the single flowers.

HELEN BLOODGOOD is the best, first and only clear true pink we have got. The flower is a large round ball borne on a stiff and erect stem. It was awarded a certificate in New York in 1893, and received the certificate of the American Chrysanthemum Society at New York and also at Philadelphia this year—94.

MISS GLADYS SPAULDING is a grand flower of a fine, clear white color. It is of perfect Chinese type, in shape and style of Mrs. Robert Craig, but almost twice as large and a great improvement on that variety. It has received certificates from the American Chrysanthemum Society at both New York and Philadelphia.

HELEN DEAN is a beautiful self light yellow chrome colored flower, large and full, and in shape like Kioto, but it is almost twice as large as that variety, and it has stiff stems. It opened about October 15 and is now (November 23) in bloom.

BRONZE GIANT is a large, full, round, heavy flower composed of innumerable petals notched at the ends; the color is deep golden yellow and bright red mixed and intermixed. The stem is stiff and the foliage fine. A good exhibition variety.

Mrs. J. H. White is a large, reflexed, dark variety, the color of Cullingfordii but almost three times the size of that variety. The habit is dwarf and the foliage fine and up to the bloom. It was awarded first prize at Boston in 1893 for the best dark variety.

Latest Fad (changed from Latest Fashion) is a wonderful and mammoth curiosity. The stems are stiff and erect. The petals individually are 8 to 8½ inches long, resembling narrow ribbons or cords hanging down from the center like a soldier's plume, and the flower is solid to the center. The color is yellow at times, striped more or less with red, giving it a bronze appearance. Of all the oddities this is the most curious. A fine exhibition flower.

C. Darville is a fine white for any purpose. On first opening it has a tinge of salmon in the center, but when fully developed the color is a clear ivory white. The petals are stiff, flat and standing out in all directions, making a perfect ball. It is a grand keeper and shipper. I have taken the blooms without stems and thrown them back and forth across the house ten or twelve times without visible injury, so you can see how stiff it is. Its stems and habit are perfect.

Conqueror is an immense, incurving, round, bronze colored flower. The habit is tall and stems at times a little weak. It is a fine exhibition sort, but not good as a commercial flower

Mrs. M. R. Parker Jr.—I had this in bloom and cut for the photograph October 4. It has been certificated by the American Chrysanthemum Society at New York. Undoubtedly it is the best early pink flowering variety to date. The inner surface of the petals is a bright, deep pink, the reverse is a rich rose pink; the petals are broad and incurving, and the blooms grow to be 7½ to 8½ inches across. The habit is dwarf, the stem stiff, and the foliage fine, growing clear up to the blooms. It is a seedling from Ivory crossed with Ada Spaulding.

Marion Abbott is a large, broad, pink flower almost the color of a Catherine Mermet rose—it is a good color. Of tall habit. While the stems are not weak they are not as strong as we would like to have them. A good exhibition flower.

Mrs. Highnotham is a broad spreading hairy pink flower, with broad incurving petals. It was awarded two certificates in 1893, and this year at Chicago was said to be the best pink, hairy variety up to date; it was shown 11 inches in diameter.

Dr. W. A. Wakeley is an immense light chrome ball with large, broad, incurving and cupping petals. The habit is dwarf and the stems are stiff.

Jeannie Falconer is a grand variety with rich, self colored, deep lemon yellow flowers. It is of immense size, very high and deep, and the petals are broad and cupped. The habit is dwarf. It is an excellent chrysanthemum for any purpose. It was awarded a certificate by the American Chrysanthemum Society at New York. It was not shown elsewhere.

Edith Smith I consider one of the best early and most promising varieties. The flower is ivory white, with broad petals, and is deep and reflexing. It was recommended by the New York committee for further trial.

Autumn Leaves (11 B) is a strange flower. The petals are medium wide; the ground color is white, and it is heavily dotted, striped and splashed with deep pink, and the tips of the petals are creamy white. The flower is 7 to 8 inches in diameter, very full and double; the habit of the plant is good and strong, but the foliage is a little weak.

Marie Valleau (76 B) is a beautiful shell pink glossy flower, 8 inches in diameter. It has never been exhibited.

Orange, N. J. T. H. Spaulding.

CHRYSANTHEMUMS MOSTLY NEW.

Among chrysanthemums which were given a very general trial this year and which will not be superseded in the immediate future may be mentioned the following:

H. L. Sunderbruch, somewhat early, of good size and form, and of a rich deep yellow color.

The Queen has become a general favorite. I believe it to be nearer *pure* white than any other variety we have, and it figures oftener in vases of fifty at exhibitions, I find, than any other white—a strong point in its favor. It is incurved and of large size, after it is going past its best, though it has a tendency to show "an eye."

Niveus is also an excellent white variety, of a different type from the last, being more reflex than the Queen. It is full double to the centre.

Erminilda is one of the best pink varieties. It is showy under artificial light, and very graceful in form.

Mrs. Craige Lippincott always attracts attention wherever seen. In color it is yellow, with broad incurving petals of large size. Its principal fault is lack of substance.

Viviand-Morel still holds its own as graceful in form and large in size; though variable in color it is generally pleasing.

Inter-Ocean is after the style of the above in form, but more delicate, and at the same time more decided and pleasing in coloring.

Charles Davis is a sport from Viviand-Morel, with tawny yellow flowers. It is not a very showy color, but its form and distinctness will make it valuable in collections. A bright yellow sport from the same source would be very valuable.

Marian Henderson is an early yellow. This has some red in its coloring, giving it a decided orange tint.

Marie Louise is an early, large creamy white, which has attracted much favorable comment this season. The flower is large for one so early, as heretofore early white varieties have been decidedly undersized.

Yellow Queen is an early yellow, worthy of favorable notice, as it is fine in form, a healthy grower, and of good size. The color has a bronzy tinge in it.

Mayflower has forged to the front, and will be a prominent figure among the white varieties next fall. It is about second early here.

Eugene Dailledouze is the best of the yellows up to the present time. It is similar in form to Kioto, but much larger and of a more glossy yellow color.

Challenge hardly came up to its promises of last year. There seems to be too much of the flower to develop satisfactorily except in the hands of the most skillful.

Minerva is another good yellow, easy to grow and of a pretty shade; it responds gratefully to intelligent treatment.

Major Bonnaffon increases in popularity. It is a beautiful incurved variety, though rather light yellow in color. On account of its dwarf habit it should be useful as a pot plant, either in private or commercial establishments.

Mrs. J. Geo. Ils created a very favorable impression when it was exhibited at Chicago last year on account of its massive build, and great number of white florets. Up to the present time (November 23d) I have not seen a flower of this variety ready to cut, on account of its lateness. Am afraid it is too weak in the stem for so large a flower to become generally popular, but its late tendency will make it valuable to many cultivators. It will take a week or ten days longer, apparently, to finish it ready for cutting.

Mutual Friend is a large white variety and very graceful in form. It has not met with the popularity in cut flower circles which was predicted for it, owing, I am inclined to think, to the fact that some growers hurried it into flower too quick, in too warm a temperature, impairing its keeping qualities.

Laredo is a late light pink. Its tendency to lateness, however, is not so pronounced as I had expected it would be. This characteristic, however, can be best developed in a solid bed.

Mlle. Therese Rey is a magnificent white variety, large, and graceful in form.

Among seedlings, or rather those which have not yet been disseminated, which have come under my notice, I must first name Philadelphia. It is white, illuminated with a bright tint of lemon yellow. It is distinct in form and coloring, and cannot fail to become a general favorite. It has been honored with more prizes, certificates of merit, silver medals, etc., than any other variety that has ever been raised. It was forwarded even to London, and there was awarded a silver gilt medal. A cablegram came over from a London nurseryman, asking the price for the whole stock! This should indicate to some extent its value. Next in point of merit is, I think, one which has been named New York. It was raised in Philadelphia, but now it is owned by Mr. T. H. Spaulding of Orange, N. J. It is creamy white in color, and very full of florets.

Dean Hole promises exceedingly well. It is white, beautifully flushed with delicate pink. It is what may be called immense in size, and exquisite in form, and Japanese as to type.

Miss Louise D. Black is in the way of Mrs. L. C. Madeira, but much brighter in color, being a deep bright shade of yellow, is also stiffer in the stem than Madeira. Gold Fever is similar in type to the last, but it is a much lighter shade of yellow, and it is also very much larger in size. Henry G. Rieman seems to be an improvement on last year's Challenge, not as to size perhaps, but on account of greater usefulness. It is built on the same lines as the last named, but being perhaps an earlier variety, had grown out of the green centre to which we are accustomed to see in Challenge as far as seen when exhibited. In form it is something like Mrs. Robert Craig, but a great deal larger. It must, I believe, rank away up front.

Mrs. Edward H. Trotter is a white of great solidity, well built on stout erect stems. Its type is of the reflexed Japanese. Miss Margaret Newbold is beautiful in form and color. It is a very delicate pink incurved Japanese, much better than Mermaid which it resembles in type and coloring. Helen Bloodgood is also a pink, but of a different shade of color, and the build or type of the flower is somewhat hard to describe. Quite distinct and meritorious. [It behaved splendidly at Dosoris. Ed.]

Oakshade, this does not refer in any way to its color, only to commemorate the place where it was raised. In form it is excellent and each individual floret re-

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sembles the floret of a salvia. Its color however, is not pleasing, being a dull shade of purple, but on account of its large size and good form, it should find a place in all choice selections.

Ellerslie is perhaps too weak in the stem to find favor with exhibitors, since the flat boards so long in use on which flowers were exhibited have been abandoned and a stem not less than twelve inches in length must be in use instead. This is a white flower, full to the centre, and very graceful in form.

Linalva is delicate pink or blush, globular in form, a very pretty flower, but considered by some, according to present requirements, to be rather undersized. Miss Gladys Spaulding, is a fine white flower and an improvement on Mrs. Robert Craig. This is an exceedingly well built variety, and altogether charming. Neva is white, suffused with light pink; it is one of those loose graceful Japarese forms so much admired. The stem, however, is not quite as stout as it should be to meet present requirements.

After looking the situation carefully over, the year 1894 is a little ahead of any former year in the production of novelities; and so long as this can be maintained, so long will the Queen of Autumn reign supreme in November.

EDWIN LONSDALE.

CHRYSANTHEMUMS AT ST. LOUIS.

At the exhibition at St. Louis the other day among the nicest varieties in pots were Major Bonnaffon, canary yellow; William Falconer, pale pink, hairy flowered; Wm. H. Lincoln, deep yellow; Mrs. Craige Lippincott, rich yellow. In cut flowers Queen was the most successful white, and Viviand-Morel pink. The yellows were nearly all Golden Wedding, and astonished me by their beauty and excellence. Mr. Michel who took the first premium told me that his chrysanthemums were grown in solid beds, and he was of the opinion that Golden Wedding would do even better on benches. The St. Louis men say they have no trouble with Golden Wedding, treating it the same as other varieties, giving it a little extra heat to hurry up its blooms, being the only special attention I heard of. But the florists here seem to agree that it is less profitable as a cut flower than is Eugene Daillledouze, a bold bright yellow flower. But to me Golden Wedding is much the more beautiful of the two flowers both in color and type. Challenge, golden yellow; Titian, rose pink; Pitcher & Manda, yellow and white; Mrs. Wm. Trelease, pink, hairy; Mrs. J. H. Starin, white; Mrs. H. McK. Twombly, white; Mrs. Charles Lanier, yellow; Mrs. J. Geo. Ils, white; Judge Hoitt, pale pink, anemone; and White Man, a new one of this year, were in splendid form

Mr. E. G. Hill of Richmond, Ind., was one of the largest and most successful ex-

hibitors. His method of growing his show chrysanthemums is to give them plenty of air day and night during summer and until frost. The plants are syring ing twice every day until buds form, then no more, after that water is given at the root only. No liquid food is given until the buds set, and then only once each week until they show color. That is, his plants receive stimulants only four or five times. The show flowers were planted in benches June 15, began to set buds the first week in September, and showed color from October 1 to 10, making only five weeks for feeding. He has fed less this year than ever before with the result of getting a better average both in plants and flowers, as well as stronger stems, finer foliage, larger flowers and better form. F. C. S.

St. Louis.

HARDY CHRYSANTHEMUMS AT WASHINGTON.

Little success has attended the efforts in growing the newer, large flowered chrysanthemums out of doors here. In some seasons when the early frosts are absent if disbudded they develop fairly good flowers, but if left to themselves they run back very quickly to medium sized ones. And these high blooded kinds are almost certain to suffer during winter if not protected from severe frosts with leaves, straw or other mulching. All outdoor plants should be lifted, divided and replanted at least once every two years. If this is not done the growths get crowded and weak. Six or eight stems to a plant are all that is necessary to make a fine display.

In this vicinity the small flowered varieties are the most satisfactory ones for outdoor work, and the following kinds are very hardy and seldom fail to perfect their flowers: La Neige, white; Golden Circle, yellow; Bob, crimson; La France, pure white and very double; White Traveuna, a good old kind; Little Beauty, white and rose; and Ajax, red. Among those bearing larger flowers the old white Elaine is one of the best; Domination is another good white, and both are early; Gloriosum and Gorgeous are among the best yellows; Cullingfordii is the most reliable of the crimsons; and October Beauty, pink, has always done well. All of the above kinds are grown extensively both in the public and private gardens here, and are all well known and favorite varieties. G. W. OLIVER.

Washington, D. C.

Roses.

PROPAGATING HARDY ROSES.

The simplest way for amateurs who have no greenhouse to propagate roses is to prune the mother plants hard in spring and then layer them as soon as the young wood has completed its growth, which will be about the beginning of July. Let these layers remain at the parent plant till the fall of the following year, then take them up and transplant them. They will make very strong plants.

From cuttings it is more difficult, but it can be done. Have a small sash over a frame, put a 3-inch deep layer of moss into it, pressing it down solid, then put 2½ inches deep of sand on top of the moss and press it firm too, and water it.

Then after the middle of June take firm current year's wood, not too strong, three to four inches long, and shorten the leaves, then plant them solidly into the frame, and water them. Keep them generally moist but give air to dry off the over moistness; also give a little shade. In fall they can be potted, or, better still, let them alone in the frame till spring, covering it with some rank litter in winter, and from time to time in fine weather ventilate the frame a little. Pot or transplant them in spring.

Budding roses is very easy. The Manetti is still the best stock. Budding can be done about the middle or end of June. Insert the buds as low down on the stocks as possible, even take the soil away from about the neck of the plant to allow you to get the bud in there. But after the buds have taken replace the soil. In spring cut the heads of the stocks back to the inserted bud. After the bud begins to grow suckers from the roots are apt to show themselves, but remove them as soon as you notice them.

Kissena, L. I. J. R. TRUMPY.

ROSES IN MEMPHIS.

I read with great pleasure the many enquiries about roses and the answers by you and your readers. I notice particularly what H. G. P., of Fruitvale, Cal., page 54, says in regard to the rose Clothilde Soupert, and which shows surely that roses have preferences.

I have long held that for all outdoor purposes, Estella Pradel leads them all, but for the last two years Clothilde Soupert seems to want to take the lead, as a free grower it is only checked by its constant and superabundant blooming, and the buds have to be thinned constantly. As a free bloomer out of doors it has few equals, and as a perfect rose opening well it has been the attraction of all beholders from early spring till to-day (November 6), yet it is of no value in the greenhouse here. The list of roses recommended to J. D. W. for Buffalo (page 55) is very good, for northern New York let me advise you to add the following varieties which are all hardy and exceedingly free bloomers. Most of them are very old and some probably cannot now be found in catalogues. They are Marquis Boccella, Dr. Arnal, Duchess of Sutherland, Giant of Battles, Hermosa, Reine Marie Henriette, Sir Joseph Paxton, Yolande d' Aragon and Musk Cluster. All these bloom freely here all summer, in fact many a time in hot long dry spells they are the only ones I have to fall back upon for cut flowers. With the exception of R. M. Henriette I have stuck to all these for 45 years. I grow many others too but they would not be hardy so far north as Buffalo.

Memphis, Tenn. JAMES STEWART.

OLD FASHIONED ROSES.

For some time I have been trying to collect some of the fine old roses of 50 years ago from the most likely parties in England and the continent of Europe but only occasionally get what I want. A year or two ago in importing some plants from a large nursery I ordered some old roses—among others the genuine old "cabbage rose and *Harrisonii*"—what was sent me for the first proved to be a genuine old Damask rose, pale blush in color, flat, having no resemblance to the cabbage rose, the variety sent for the second I soon recognized as

"WILLIAMS' DOUBLE YELLOW SWEETBRIER," this I was pleased to get, as I had not seen a plant of it for over fifty years. It was raised by Mr. Williams of Pitmaston (England) some sixty or seventy years ago, and it was much grown in England before the appearance of *Harrisonii*, the latter having the finest flower superseded it, the habit is better than *Harrisonii*, it is more bushy, dwarf and thorny like a Scotch rose.

Caroline Marniesse is an old styled Noisette rose with large bunches of small double white flowers or nearly white, it blooms more or less all summer and is hardy. [It is a climbing rose of moderate growth and blooms in clusters. Trained up against the south-facing wall of a building at Dosoris it does well, so too it does on a north wall, and it is a great favorite with the ladies.—ED.] These old roses have dropped entirely out of cultivation in the nurseries of England and the continent or nearly so and can only be found in the old gardens in those countries and I suppose the demand there is not sufficient to induce any person to hunt them up. JOHN SAUL.

Washington, D. C.

THE DAMASK ROSE.

Have you this rose (*Rosa Damascena*), the rose from which the attar of roses is made? I hope not, for I want to send you one that you may gather the roses for your wife to wear in her belt each morning. My mother always wore one that way. With all your beauties you never had a sweeter rose than this one. [This old-fashioned rose is a native of Syria and has been in common cultivation in gardens for over three hundred years. It is one of the sweetest of all roses, and although, as a flower, it is not up to the standard of perfection attained by our artificial roses, of which it was one of the foundations, we ought to grow it for the sweetness of its blossoms just as much as we grow sweetbrier for the fragrance of its foliage.—ED.] L. G. C.

Virginia.

MADAME TESTOUT ROSE although lovely in color when fresh, is not full enough to keep well, seeming to soon fall open rather limply, and then taking on a bluish tone that is not pleasing. F. C. S.

St. Louis.

The Greenhouse.

HOW I GROW BEGONIA RUBRA.

Young plants bought in the spring or else propagated from cuttings will make nice flowering plants for the following winter. This begonia likes a light rich soil, and during the summer it should be place i in a half shady place out of doors, and never allowed to get dry. It throws up new shoots from the root stock every year and these bear the flowers the following winter and spring. These shoots will increase in size in proportion to the age of the plant so that four year old plants will often throw out shoots six and seven feet high and one inch and more in diameter. There ought to be only the growth of the last two years left on the plants. Shoots that were thrown up in previous years should be cut out close to the base of the plants. The new shoots have a tendency to keep on growing like a bamboo without branching, but to induce them to branch they should be cut off at a desired height, say about four feet from the ground. The top eye of the pruned shoot will at once start to grow and send up a strong single branch which is apparently determined to take the place of the cut off top of its parent. In examining now the base of this new branch we discover right at its starting point a lot of dormant eyes clustering close together, if the new branch is cut off

YEAR OLD HYDRANGEA

right at its base all these dormant eyes will at once start to grow and form a beautiful crown. Plants grown in this manner will be literally covered throughout the latter part of winter and early spring with their drooping clusters of red flowers. L. W.

St. Paul, Minn.

HYDRANGEAS FOR WINTER FORCING.

As regards whether hydrangeas should be allowed to rest before being forced or not we have, in view of the following experiment, decided in the affirmative. We were informed that hydrangeas did best when grown from start to finish without losing a leaf—that is one year old plants in 6-inch pots, which are so useful for Easter decoration. In March, '92 we rooted some cuttings from the "blind" wood, and gave them their final potting into 6-inch pots in June. About the 15th of September, while the foliage was still fresh and green, we brought 20 plants into the greenhouse, and left the remainder outside till the approach of frost, when we put them into a cold frame and kept them dry. These latter ones were brought into a cold greenhouse on January 12, 1893, and were perfectly denuded of foliage. As soon as they made a little growth they were brought into a warmer house, with a night temperature of 58°. They were thinned out, as soon as the flower buds appeared, to one shoot, and received liberal applications of liquid manure. Some of these plants had, on Easter Sunday, April 2, heads of bloom measuring 13 inches in diameter.

Some of the shoots which were thinned out were taken off with a heel, and inserted into the cutting bench to strike root, when they were well rooted we potted them into 2½-inch pots, and they gave us little heads of bloom 3 and 4 inches in diameter. The ones which were not "rested" had a hard time to make two or three leaves, and did not bloom till we got tired looking at them on the bench. We then turned them out into a cold frame, and about May some of them gave little heads of bloom. The varieties grown were acuminata, also hortensis forms, Cyanoclada, Thos. Hogg, and rosea. WM. FITZWILLIAM.

Orange, N. J.

AGRICULTURIST—GREENHOUSE.

1. What is the address of the *American Agriculturist* mentioned in GARDENING, October 15 last?

2. I have a small greenhouse, 8x24 ft., sloping east, and am thinking of building a larger one. I have a very good position, I think; it is sloping one inch to the foot, facing east; and there is a high bank at the north and a large barn on the west side. I am thinking of building a 16x30 ft. gable roofed greenhouse there, to run southeast; and to have ventilators on both sides of the ridge, also along the front underneath the side benches to use if needed, for bedding plants, and especially specimen chrysanthemum plants in the fall. T. D.

Rhode Island.

1. The *American Agriculturist*, 52 54 Lafayette Place, New York. Aside from the announcement of the other paper you ask about we have never heard or seen anything of it.

2. Let the floor of the greenhouse be a little higher above ground than the ground level on the lower slope. Have the front wall 4½ feet high—2 feet wood, and 2½ feet glass—and run the pitch of roof about 30 35 . This will give you a nice light house with plenty of head room for chrysanthemums on the middle bench. With ventilators on both sides of the ridge there isn't pressing need of side ventilators, but if you wish to have the latter, along the east side is all that is necessary.

DRACAENA-CYPERUS.

W. W. O., New York, writes: "Last spring, as the centre piece of a vase I planted a *Dracæna indivisa*, in another a *Cyperus alternifolius*, and they are now very nice plants. Can I keep them over winter in a cellar (cool), if so, how must I treat them? Shall I keep them in the light or in the dark? Shall I water them, and how much?"

No, don't remove them to the cellar, neither will do well in it, but both will in the window. Neither needs a sunny place, they are happy in the society of ferns, ivies, and the like. The cyperus likes warmth and moisture; a comparatively cool apartment will answer for the dracæna, and keep it slightly moist. In watering plants give enough at a time to moisten all the soil from top to bottom, but never so much as to make it muddy.

BOOKS ON GROWING FLOWERS IN THE GREENHOUSE.—H. S., Providence, R. I., asks: "Can you advise me as to the most practical book on the culture of flowers, bulbs, etc? I have a small greenhouse with a good many nice plants, and I want to get all the practical information within reach."

Henderson's Practical Floriculture, price $1.50; Henderson's Gardening for Pleasure, $1.50; Allen's Bulb and Tuberous-rooted Plants, $2.00, and Hunt's How to Grow Cut Flowers, $2.00, are all first rate books, and void of the gush and twaddle that fill a good few books in this line with more catching titles. You can order any or all of them through the publisher of GARDENING. If they don't appeal to your case don't hesitate to ask us for any information you may need regarding the cultivation of your plants.

MEALY BUGS ON TRAILING SAXIFRAGE.—Dr. J. H. B., California, writes: "I have a trailing saxifrage [probably *S. sarmentosa*.—ED.] that is nearly covered with mealy bugs. I immersed it in water over night, which killed all the bugs, but did not apparently kill the eggs, as the insects are on the plants again. What shall I do to get rid of them?" Immerse the plants in water 125° to 130° letting them stay in it till it cools to normal temperature. Repeat it in about a week after.

CARNATIONS.—Lizzie McGowan is a fine white; it is always growing and blooming. Uncle John too is a good white. Among pink colored ones, Wm. Scott bears the most flowers, but Mme. Diaz Albertini is a great favorite, so too is Daybreak. E. A. Wood, a new seedling is very good, and Helen Keller, a new variegated one, is very fine. F. C. S.

St. Louis.

I ENJOY and value the paper very much. It is exceedingly satisfactory to see *photographs* of plants and shrubs instead of the ordinary ugly and doubtful representation of an impossible growth.

MRS. M. P.

College Hill, Schenectady, N. Y.

GARDENING

WILLIAM FALCONER, Editor.

PUBLISHED THE 1ST AND 15TH OF EACH MONTH

— BY —

THE GARDENING COMPANY,

Monon Building, CHICAGO.

Subscription Price, $1.00 a Year. 24 Numbers. Advertising rates on application.

Entered at Chicago postoffice as second-class matter.

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All communications relating to subscriptions, advertisements and other business matters should be addressed to The Gardening Company, Monon Building, Chicago, and all matters pertaining to the editorial department of the paper should be addressed to the Editor of GARDENING, Glen Cove, N. Y.

GARDENING is gotten up for its readers and in their interest, and it behooves you, one and all, to make it interesting. If it does not exactly suit your case, please write and tell us what you want. It is our desire to help you.

ASK ANY QUESTIONS you please about plants, flowers, fruits, vegetables or other practical gardening matters. We will take pleasure in answering them.

SEND US NOTES of your experience in gardening in any line; tell us of your successes that others may be enlightened and encouraged, and of your failures, perhaps we can help you.

SEND US PHOTOGRAPHS OR SKETCHES of your flowers, gardens, greenhouses, fruits, vegetables, or horticultural appliances that we may have them engraved for GARDENING.

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DISQUALIFIED.—An English gardener had his chrysanthemums disqualified at two of the exhibitions over there; then he took up his pen and gave vent to his feelings in the press. In desperation he asks: "I should really be very glad to know from good authority what I had better do under the circumstances." Let us prescribe the following from the *American Florist* of a week or two ago:

"MUCH WISDOM IN FEW WORDS.—Exhibiters and Judges: Keep still and saw wood. This is my experience, and I have entered in both classes."

I ENJOY your paper much, and think the plans you have published of much beauty, and fine as instructors; in fact I read it from beginning to end. MRS. S. B. F.
Stark Co., Ohio.

THIS COUNTRY imported from Bermuda last year lily bulbs, valued at $105,000, cut flowers, $6,800, onions $299,000, and potatoes $133,000.

A VARIEGATED LEAVED *Hypericum Moserianum* is one of the novelties we are told for the future from the French. We are told the leaves are much stained with yellow, and suffused with red.

IS THE TOMATO A "FRUIT" OR A "VEGETABLE?"—The *Gardeners' Chronicle* says "while the tomato is botanically a fruit its use in gardening is almost that of a 'vegetable,' and hence it should, for garden purposes, be so classed." That is just what we do.

TOMATO "VINES."—The same learned authority quotes from Professor Bailey's Annals of Horticulture: "Tomatoes are the fruit of the vine, just as are cucumbers, squashes, beans and peas. '(!!)' " And comments, "It is very amusing to see the use of the 'vine' in this connection. On this side (Europe) of the Atlantic we should never say that tomatoes or vegetable marrows grew on vines! Our American cousins use the word vine in a very broad sense to include all herbaceous stems that are more or less trailing or climbing." Bless you, Doctor, what should we say?

DRY GROUND IN WINTER is a safeguard against winter killing. Wherever water lies on the ground by reason of rains, thaw, or surface drainage, plants growing there are more apt to suffer than plants growing where water never lodges. On low wet land our plants do not get as much good of mulchings as they do on dry ground. Indeed, having our gardens thoroughly drained from surface moisture is of primary importance, no matter what crops we grow in them.

IRIS KŒMPERI.—A correspondent writes in the London *Garden*: "In spite of nursery catalogues no one should grow this iris unless he can flood it with water during the growing period." No, no. Were that the case not one person in a thousand who grows this gorgeous iris to-day would grow it at all, and that would mean that the nurserymen and florists would drop it from their lists as being dead, unsalable stock. Why, Kœmpler's irises grow rankly and blossom beautifully in our plain open gardens and fields under common cultivation. True, the flood of water would improve them, but we can grow them well and enjoy them without it.

DESECRATED ROSES.—At home when we use roses or other flowers to decorate the dinner table we arrange them in all their natural simplicity and beauty, if they are too short or weak stemmed to stand out boldly on their leafy stalks, we shorten the stems and stand the flowers in shallower vases or baskets. The idea of stiffening the flower stems by wiring them or fastening them to pegs to keep their forms and heads erect is repugnant to refined taste. A rose in a straight jacket of wire and wood is a desecration of the queen of flowers. But on the public dinner table this sacrilege is often perpetrated. Can we enjoy there what we would not tolerate at home?

WHAT AILS THE KEW MAGNOLIAS? One of the Kew staff writing about magnolias in the London *Garden* says of *M. parviflora*: "The blossom was about 3 inches in diameter, cup shaped, with six or seven incurved petals, creamy white at first, afterwards changing to yellow. The flower had a strong fruity perfume." At Dosoris this gem among hardy shrubs (see GARDENING, page 3, September 15 last) doesn't behave in that way we are glad to state, its blossoms are white as milk and stay white till the rose bugs eat them up. And instead of having one blossom to report upon, there are scores of them. But as compared with *M. Watsoni* or *M. hypoleuca* it is not strong scented.

WINTER PROTECTION.—The past summer was exceptionally dry, and many trees, shrubs, berry bushes and vines completed and ripened their growth early in the season. In September we got copious rains, and the ground being warm and moist many plants rushed into new growth, and even blossomed out as if it were spring. That was bad for the plants, and the chances are that they will suffer more this winter than if they had not started to grow in the fall. Such plants where practicable need extra protection. When it comes to raspberry, blackberry and rose bushes, grape vines and the lesser shrubs we can give it in mulchings, burying in earth or protecting with temporary evergreen shelters, boxes or barrels. And in the case of tall roses, styrax shrubs and others that are not of iron clad nature, strapping a few evergreen branches around them, or a wrap of long straw or sedge, or corn stalks, or a piece of burlap, oiled muslin, or old matting or carpet, will be a great safeguard.

LATE-BLOOMING CHRYSANTHEMUMS.—There seems to be far too great stress laid upon attaining earliness in the chrysanthemums. Commercial florists want them early to catch the market, and to have the flowers in good condition with very little if any fireheat, at the flower show season—early in November; and they also want to get them cut and sold and the plants cleared out of their greenhouses as soon as possible, so that their benches may get filled up with some other crop. Amateurs on the other hand wish to prolong the season. We have now lots of chrysanthemums in good bloom by the 10th of October, and a glut of them between the 20th of October and the 10th of November. After November 20th good flowers begin to get scarce, and by December 1st there are few left. Do we want them? Indeed we do, for at this time of the year either window or greenhouse flowers are comparatively limited in quantity and variety. In fact, aside from chrysanthemums the period between the middle of November and Christmas is the dullest time in the year for flowers. Of course with greenhouses we can have tea roses, carnations, mignonette, violets, bouvardias, poinsettias, and orchids, also forced Roman hyacinths, Bermuda lilies and paper white narcissus. But we feel keenly the need of a few very late blooming chrysanthemums that can be depended upon to product a crop of fine flowers in December, and also to preserve their foliage clean and healthy and free from mildew, without extraordinary effort.

DISPLEASED WITH OUR OUTSIDE CHRYSANTHEMUMS.—When we see the peddlers on the streets selling finer blossoms at 5 cents a bloom or spray than we have in our gardens at home notwithstanding our rich soil, sunny yards, labor, love, and attention, we are apt to feel dissatisfied. Years ago neighbors and friends, near and far, would be delighted with a basketful of our garden flowers, and pro-

fuse in their thanks for the same, really meaning it, nowadays, however, as even our finest blooms cut from outside ranks as a sorry third or fourth with that from the greenhouse, we feel scrupulous about cutting and offering them to anyone. But don't despair. With choice varieties, an open sheltered place, good soil, strong young plants of healthy early kinds to begin with, a mulch and liberal waterings in summer, timely staking and tying, thinning out overcrowding and worthless wood, a sharp eye on bud or tip shoot, insects, and early, repeated and severe disbudding of flower buds and side shoots, should get some very fine flowers for us. One of our neighbors remarked the other morning "When in New York the other day I was passing —— —— the florist's, and stopped for a quarter of an hour looking in at his window, the chrysanthemums there were ground, and such lots of them. As I looked upon those magnificent flowers and thought of the pails of water I used to carry to my plants at night all summer long and what my flowers are now alongside of those greenhouse beauties, it made me feel sick." Don't do that; try again and with more painstaking than before, and if that isn't enough, build a little greenhouse, chrysanthemums are only one of many plants you will enjoy in it.

Trees and Shrubs.

WINTER PROTECTION.

It is now time to apply whatever winter protection we mean to give to our trees and shrubs, no matter how mild the weather may be. There is often greater harm done by protecting too early in the season than by delaying it till Christmas; in fact, there is safety in letting the plants get pretty well inured to the weather before we cover them up to save them from long-continued severe cold.

There is very little pleasure in planting unreliably hardy trees for permanent effect. As far north as New York these may consist of evergreen magnolia, deodar, Nemu acacia, idesia, and the like; because they may live uninjured for a few years in succession in sheltered places is no reason why we should class them as hardy, for they are not.

Have a good windbreak to the north and west sides of your tender trees and choice plantations or beds of young stock; this may consist of a belt of deciduous and evergreen hardy trees, a board fence, contiguous buildings, or a roll of land or an embankment. If there is no permanent shelter of this sort, erect a temporary one of boards, corn stalks, or evergreen branches. And if the individuals are still too tender for this, as is the case with *Magnolia grandiflora*, gather the branches together, tying them as close into the stem as practicable without hurting them and then set barrels (out of which the heads and bottoms had been knocked) one above the other over the tree enclosing the branches and hold them in place by strapping them between long poles and bracing these in the ground. Or wrap them around with straw rope or burlap. Deciduous trees like *Acacia Nemu* may have their branches cut in pretty well before tying them together, and encasing them in barrels or burlap.

In the case of shrubs that are not reliably hardy, for instance crape myrtles, pomegranate, leycesteria, several evergreen euonymuses, and the like, the best way is to lift them, and heel them into the ground in a pit, close shed or cold cellar, transplanting them to the open garden again in spring. If it is meant that they shall be left in the garden over winter, mulch them a foot deep or more with tree leaves packed firm, and place barrels or boxes over their tops, or tie them into a stout stake and wrap them up with burlap, oiled muslin, or straw rope.

If rhododendrons are not quite hardy with you, mulch the ground very heavily with oak leaves and form a 5 or 6 foot high fence of 3 or 4 strands of wire or bars around the bed, interweaving between the wires with spruce, pine or other evergreen branches set close together for a windbreak. A temporary board fence will answer the same purpose. Some people cover their rhododendrons overhead with branches; this requires a skeleton frame erected over the plants, the branches are laid and tied on top of it. Or the branches may be stuck in erect among the plants. Where the winters are very severe, however, and the beds are small it is well to box in the bed both on the sides and overhead. No matter whether the boxing is water tight overhead or not the plants should survive the winter, but we should prefer to have it tight on top, and have an open strip for ventilation at top on the south upright side. This annual boxing up however is so laborious that it is much easier and less expensive to lift the plants every year and heel them in moist earth in a cold dry cellar or close shed. That rhododendrons will submit with perfect grace to this double transplanting a year, the splendid collections of tender varieties at Wellesley, Brookline and Concord near Boston and which are treated in this way are ample testimony.

The best and safest outdoor winter protection for such barely hardy plants that can be easily bent down upon the ground is common earth. For clematis, tender roses, southern jasmine, and others, scoop out a little trench lengthwise in the rows, or around the bottom of the stake in the case of isolated plants, then unfasten the plants from their supports if they are tied, prune them if necessary, and lay them down into the little furrows made for them, and now bury them a few inches deep with common earth. The ridge raised in filling over them will shed the water from the crowns; and if any additional protection is needed, let it be given in the way of a heavy mulching of tree leaves with a little litter over them to keep them in place.

The Fruit Garden.

THE FRUIT GARDEN.

If we cultivate and fertilize our orchards we may reasonably hope to get good crops of good fruit; on the other hand, if we do not feed our trees the fruit is apt to be of poor quality, and the trees become enfeebled. We have strong faith in wood ashes spread broadcast over the orchard: also in heavy dressings of well decomposed manure. This is a good time of the year to apply this dressing.

Apples.—Many of the trees are quite leafy yet, this makes it awkward to prune them for a while. But suckers from the root and broken branches in the tops can be cut out. See that recently planted young trees are securely staked.

Fig Trees live and fruit well in the open air on Long Island but they have got to be laid down and buried over winter, and it is now time to do this work. Covering with evergreen branches, tree leaves, and such like means isn't nearly as good as burying the plants with 8 or 10 inches deep of earth.

Pear Trees are now leafless, and if they have been properly attended to before, they will need but little pruning now. They should get what is required, however. If there is any bark scale on your trees, spray them lightly with kerosene, and it may be well to get some kerosene butter or strong emulsion and scrub or paint the trunk and limbs with it.

Grape Vines—Get your vines pruned as soon as possible. We always try to have them pruned before Christmas. In pruning cut out all the young straw wood, and the long blind canes, no matter be they old or young. Stout, firm, short-jointed, well ripened wood is what we want to keep. Don't encourage long shoots. In pruning cut the leading canes well back, and the laterals back to one or two eyes. If your vines are at all tender, after pruning them unfasten them from their stakes or trellis, gather the canes together on the ground, stretching them out straight, and cover them a few inches deep with earth.

Raspberry bushes.—Cut out the old or dead canes and shorten back the young or living ones to 3 or 4 feet high, then bend them down in the row, all leaning one way, and cover them with a few inches of earth. In many parts they live very well with burying in winter, but the uncertainties of late winter weather render laying down and covering canes in this way a necessary precaution.

Blackberries may be treated like raspberry bushes, but don't cut them down so low. As they are quite stiff to bend and bury, if we tie them down pretty well and stick a few evergreen branches among them to break the wind it will help them greatly.

Over Dewberries lay a few branches too, to gather leaves and snow.

Strawberries are benefited by a mulching over winter, this may be of sedge, fern, corn stalks, straw, rank stable manure or other litter; spread it evenly over the plantation, covering plants and all. Don't be afraid of having delayed doing this too long, there is more danger in being early than late. We prefer doing this work in frosty weather for several reasons: We can do it better, and more evenly and expeditiously when the ground is hard frozen than when it is soft; we are less apt to injure the plants by treading on or about them; and field mice are not so apt to infest a strawberry patch that is not mulched till late than they would be were the straw covering put on early and while the ground was soft and easily burrowed.

RENOVATING AN OLD PEAR ORCHARD.

G. W. M., Philadelphia writes. "I bought a piece of land on which are about 50 Seckel pear trees most of which are about the thickness of a man's thigh. They have been entirely neglected, and the fruit is almost worthless. They are grown trees, however, and as such desirable from the standpoint of landscape gardening, the place being otherwise treeless. I have been told that they could be grafted with other varieties of pears. Can you through your very interesting paper suggest the proper treatment."

If you wish to retain the trees you want to get them into a healthy, thrifty condition no matter whether you keep them as Seckels or graft some other kinds on

them. Cut out every bit of dead, dying, broken, gnarled, scrawny, useless wood from among the tops of the trees; remove all scraggy, stunted, and misplaced shoots from their stems, with a stout, short-handled iron scraper, scrape off the roughest of the cracked mossy bark from the trunks; and dig up and cut away clean every sprout springing from the roots of the trees, being especially particular about those around the base of the trunk. The Seckel fully as much as any other pear tree is apt to send up sprouts from the roots spreading out from the trees. If, after all this the trees have a broken up unkempt appearance, head them in or thin them enough to balance their growth as individuals, and preserve the symmetry of the orchard. Don't be afraid of the knife and the saw. Cultivate for wood first, then for fruit. We don't like grafting the Seckel to some other variety because it isn't a very good host, if it cannot support itself how should it support another sort? The severe heading back at grafting time in the case of old plants is apt to burst them into sturdy vigor, but rather than try to recuperate an old orchard in that way we would plant young, vigorous, healthy standards at once.

After pruning and dressing the trees see to the land: If it is in grass give a bushel of wood ashes to each tree spreading it all around within twenty feet of the bole, and then apply a heavy topdressing of common stable or barn yard manure equally all over the lot, and do this now. If the land is cultivated don't plow or dig it near or under the trees, instead run the harrow over it to unfasten the surface lightly and even it but not tear up the roots, then apply wood ashes and a manure dressing as in the case of sod land.

HOW TO HAVE LOTS OF BERRIES.

In rich, well cultivated land there may be grown, with a little effort, a continuous supply of healthful, large, luscious berries. If less is produced, we may look for the reason from one or more of the following causes and briefly suggest a remedy.

First, land deficient in fertilizer, or plant food. Apply fine composted manure, plow under and top dress. Also ashes broadcast.

Second, improper preparation of soil. Plow deeply and harrow until fine, light and mellow. Extra preparation makes plant food more available.

Third, varieties not adapted to your soil and climate. Use only such as have been well tested in your locality, or recommended by responsible parties.

Fourth, poor plants. Buy only best hardy vigorous plants from responsible growers. Never set poor plants.

Fifth, careless setting of plants. Never expose plants to sun and wind before setting. Have roots well spread, and fine dirt firm about them.

Sixth, too many plants, in hill or row. Preserve only strong vigorous plants, give each room to develop and perfect its fruit. Prune severely.

Seventh, imperfect fertilization. There is sex in plants. Pistilates (female) must have staminates set with them to insure good crops.

Eighth, neglect in cultivation. The ground at all times should be fine, mellow and free from weeds.

Ninth, no protection. Mulch in summer with coarse manure, grass or green clover, in winter by a suitable protection against extreme cold. In the northwest, laying bush berries down and covering with dirt.

Tenth, frost and drouth. The most difficult to overcome. Berry fields well cultivated are several degrees warmer than uncultivated fields, therefore less liable to damage by frost. Retain mulching as late as possible on strawberries in spring. Damage by ordinary drouths may be prevented by summer mulch and frequent cultivation. Severe drouth requires almost constant cultivation and heavy mulching. M. A. THAYER.

Sparta, Wis.

The Vegetable Garden.

THE VEGETABLE GARDEN.

There is very little left out of doors now. Clean up everything, level off the ground, manure it well and get it dug over or plowed. In digging never use a spade if a fork will answer as well, for the fork does better work than the spade and is easier on the man. But never dig frozen or sodden ground. In digging don't plaster the earth down as smooth as if it were raked; let it be as rough as possible, so that the frost may take a good hold of it. In clearing off ground for digging don't rake off all the green leaves and short succulent trash upon it; rather let them stay and dig them under with the manure, for they are a good fertilizer.

Clear frosty weather is a capital time to haul out manure; you can wheel more or cart more in a given time than in mild weather, and without making so much mess. If there is very little or no snow on the ground you can dump the manure in small heaps and then spread it over the plat; but if the snow is deep you had better pile it in larger heaps, to be distributed in favorable weather.

What is the best manure for the garden? That depends upon two things, namely, the soil and the crops. But common barn yard manure—where horse manure, cow manure, pig manure and fowl manure are all mixed up together—is prime manure for most anything. As a rule the market gardeners of Long Island have an aversion to using pig manure for any member of the cabbage family, believing that club root is worse when they use it than when they employ other manures; they also believe that potatoes are more scabbed when grown on pig manure than on horse or other fertilizer. We use a large quantity of home made well rotted pig manure, however, and must say our experience does not corroborate the aggravation of either club root or scab. As it is short, strong manure, however, we use it largely on corn, beans and peas, and find it gives capital crops. Cow manure is excellent for most anything and preferred for light dry soils; on the other hand horse manure is liked for heavy loam or clay soils. But don't quibble over the kind; use what you can get, and lots of it. Don't be afraid of surfeiting the land. Remember that the market gardens around London and other old cities have been in cultivation for hundreds of years, and the gardeners have been piling manure into them every year since the ground was first broken, and they are doing the same thing yet, and the soil bears heavy crops continuously. Better take a small piece of ground and feed it well than a large piece of land and half starve it. You cannot overcrop the land if you feed it enough.

Never put dry, chaffy manure upon the land. Manure should be well wetted and kept moist all the time. Horse manure if piled up is apt to heat and "burn" badly; this is very injurious to its quality. Keep it well wetted all the time.

Miscellaneous.

DOSORIS-CHRYSANTHEMUMS-ROSES.

J. B. R., Key, O., asks: 1. How do you pronounce Dosoris?

2. Are visitors admitted to the grounds?

3. Do chrysanthemums deteriorate? Last year I raised a fine plant of Mrs. E. D. Adams; it was perfectly snow-white. This year the same plant is tinged with pink and not nearly so fine. What is the cause?

4. Can I protect a bed of tea roses by building a frame around it and filling with leaves, and if so should I cover it so as to exclude rain?

1. Do-so-ris.

2. For eighteen years prior to the spring of '92 they were open to the public every day in the year. After the spring of '92 they were closed on Saturdays and Sundays, but open on all other days. Since May '93 they have been closed to the public. But people specially interested in gardening may, upon application, be admitted.

3. We have had chrysanthemums deterioriate in vigor as they got older in years, and especially is this noticeable in the case of seedlings, many that are quite vigorous the first year, proving less vigorous the next season. At the same time, much of the "deterioration" is owing to disease or unfavorable cultural conditions.

4. Yes. Also exclude rain, it will add to the efficiency of the protection.

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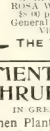

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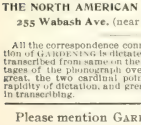

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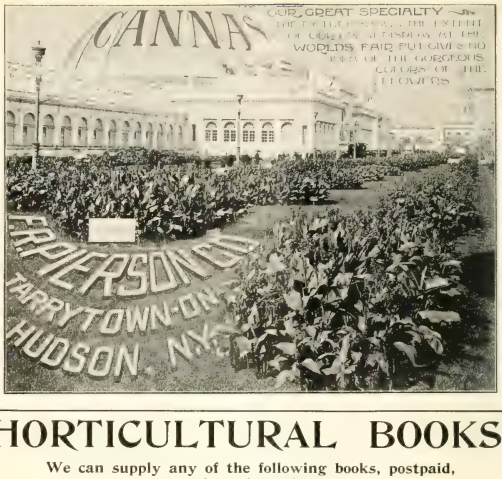

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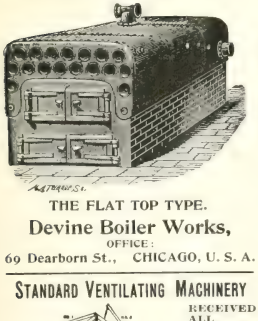

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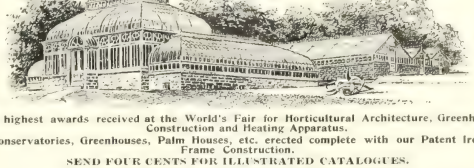

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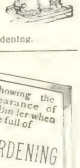

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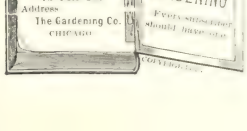

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GARDENING

Vol. III. $2.00 A YEAR 21 NUMBERS. CHICAGO, DECEMBER 15, 1894. SINGLE COPY 10 CENTS. No. 55.

LILY POND AT FAIRMOUNT PARK, PHILADELPHIA

Aquatics.

A LILY POND AT FAIRMOUNT PARK, PHILADELPHIA.

This beautiful lily pond is situated on the north side of Horticultural Hall, near the main driveway around that building. The pond is somewhat raised above the surface of the surrounding soil, and the embankment of about two feet is clothed with golden leaved honeysuckle. In the center of the pond is a large clump of lotus (*Nelumbium*); the rest of the plants are largely nymphæas. Of these Mr. Mingey, the superintendent of the Hall gives me the following notes:

"The tropical lilies growing in the pond are *dentata*, white; *rubra* and *Devoniensis*, red; and several varieties of the purple *Zanzibarensis* which we grow from seed every season. The hardy varieties which are growing in this pond and remain outside all winter, and usually flower two months earlier than the tropical ones, are *candida* and *tuberosa*, white; *odorata rosea*, and Marliac's new French hybrids which produce many shades of color varying from pale yellow to pink."

This bed is so near the drive that the occupants of carriages can see its beauties without alighting.

The small tree at the far end of the bed near the right hand corner is the *Sophora Japonica*. It blossoms in August having panicles of yellowish white flowers; its leaves are bright green. The large, round headed tree which shows so prominently in the picture is the white oak, *Quercus alba*, which when given plenty of room makes an excellent specimen. The medium sized tree in front of it is an ash.

There are two flower beds shown at the far end left hand corner of the lily pond. The one in front is filled with crotons, plants unsurpassed for a beautiful display in summer, delighting in heat and moisture. The bed in the rear is filled with hardy hydrangeas, *paniculata* on the outside and its *grandiflora* variety in the inside. Chief Charles H. Miller says the *paniculata* is not esteemed as much as it deserves to be. He uses it a great deal, its bold upright panicles giving it a distinct appearance from the *grandiflora*.

The masses of shrubbery seen on the left are made up of rhododendrons, azaleas, hydrangeas and various flowering shrubs. The rhododendrons were planted many years ago, the old soil being first dug out to a considerable depth and new soil of a turfy, sandy nature substituted for it. The roots of the plants are cool and moist all the time, and the plants thrive wonderfully well there. Behind a group of trees, but not shown in the picture, was a bed of scarlet salvia

edged with golden coleus, which attracted a good deal of attention. J. MEEHAN.
Philadelphia.

GETTING RID OF GREEN SCUM ON LILY PONDS.

In answer to M. N., Chippewa Falls, Wisconsin: "How to get rid of green scum on lily ponds," would say: The quickest and best way to clear a pond if it is to have two men with long, and light boat oars, one stationed at each side of the pond, then commence at the upper end (or inlet) to skim the surface of the water lightly in the direction of the overflow. Very soon you will start a current towards the overflow which will carry all the scum with it. By following up with the oars you can run all the scum out at the overflow in a very short time, and without hurt to the lilies, as the current created carries the leaves under water until you have got past them. If you choose a day when the wind is blowing towards the overflow it will be a great help to you. P. BISSET.
Washington, D. C.

A POOR FISH POND, BUT A GOOD LILY POND.

I have a fish pond that proved a failure for fish on account of the musk rats, and I want to make it into a lily pond in the spring. It is so near a large spring that the water in it never freezes in the coldest weather. In summer I can turn the stream around the pond and only let it be fed by a small pipe, otherwise being so near the spring the water may be too cold. Can not I winter in this pond with a bold stream from the spring only a few yards away many plants that would be too tender for a frozen pond? L. G. C.
Rockingham Co., Va.

The pond is admirably adapted for a water garden. But it shouldn't be very deep where the lilies grow, grading from six inches to three feet is a good depth; and there should be a good thickness of rich natural mud in the bottom for the plants to grow in. As such a deposit of mud seldom occurs in brisk spring-fed ponds it should be added artificially, say rich loamy soil mixed with old cow manure. If the stream can be diverted in summer why not altogether except to clean the pond, and in winter just enough to keep it from freezing?

Although the water may not freeze in winter I should not care to risk fine tropical lilies in the pond, but would try a few *Nymphæa Zanzibarensis* and its varieties for experiment. I would plant nelumbiums notwithstanding the musk rats, they grow vigorously and flower profusely the first year. The rats will thin them out in winter, but they will need thinning, otherwise they would soon take possession of the whole pond. Nymphæas interspersed with the nelumbiums add to the beauty of the pond. Don't plant the parrot's feather (*Myriophyllum*) or the nymphæa-like floating heart (*Limnanthemum nymphæoides*), lest, being hardy, they become ineradicable pests. You can depend upon the following kinds of water plants as being hardy, beautiful, easy to grow and well adapted for your pond:

Lotus.—*Nelumbium speciosum* and *N. album striatum*. Water lilies or nymphæa.—White, *N. odorata, o. superba* and *N. candidissima*; yellow, *N. sulphurea, chromatella* and *Mexicana*; pink, *N. odorata rosea, o. Caroliniana, Marliacea rosea* and *Laydekeri rosea*.

Companion plants to set out about the banks of the pond —Japan irises, variegated flag, zebra-striped rush, different kinds of arrow leaf (*Sagittaria*), cardinal flower, wild rice, narrow-leaved cat tail flag (*Typha*), and the swamp rose mallow (*Hibiscus moscheutos*).

Among tender plants that should grow well in summer in such a pond a e: Blue —*Nymphæa Zanzibarensis* and its variety *azurea*, and *N. cœrulea*; red—*N. Zanzibarensis rosea* and *N. Devoniensis*; white —*N. dentata*. The last two are night-bloomers. As companion plants to these plant the Egyptian paper reed (*Cyperus Antiquorum*), the umbrella plant (*C. alternifolius*), the yellow water poppy (*Limnocharis Humboldtii*), water hyacinth (*Eichhornia azurea*), water ranunculus (*Limnanthemum Indicum*), and the canna-like thalia (*Thalia dealbata*) from S. Carolina. WM. TRICKER.
Clifton, N. J.

The Flower Garden.

PROPAGATING GLADIOLI.

I am interested in hybridizing gladioli and have now two things I am in a hurry to propagate, one is seed of *G. oppositiflorus*, a high priced species, the other is a lot of bulblets of an extra fine Nanceianus novelty, "Sir Trevor Lawrence," sold last spring at 10 francs. My one bulb produced 75 or so bulblets, very much to my surprise, and I want a stock in a hurry.

1. Can I save a year by sowing seed or bulblets in a greenhouse, or in boxes in the house having no greenhouse. I would not hesitate to put them in some greenhouse to save time. My idea was to dry off the bulblets say in March and plant again in May.

2. I have some trouble to make bulblets even when they are peeled grow. Too many don't start until fall.

3. Also I would like to know whether sowing seed and bulblets in a hotbed, say in March or April, would advance them and by giving a chance to cover with lights in fall make strong bulbs the first season. Our seasons here are rather short. GLADIOLUS.
Wisconsin.

1. We do not think you can, in fact we look with much disfavor on the greenhouse idea. It will pay you to take some bulblets of common sorts and start them in a greenhouse now for experiment. You will find they don't start kindly, but after they do start some of them are apt to rot off mysteriously and easily. If you mean to give them two growing periods and two resting periods a year, we would caution you against it. If you mean to give them an early start in the greenhouse in spring and then plant them out when in growth in May to lengthen their growing season, we do not think it would be of any advantage to them.

2. That has been a general complaint this year; the very dry summer was the cause of it. Don't peel your bulblets till within a few days before you plant them out, and don't plant them too deep, then mulch the ground with three to four inches deep of loose excelsior held in place by a few light laths or thin branches till the bulblets begin to grow.

3. No, let the hotbed too alone. But sow early and don't forget the mulching of excelsior. You ought to see the beds of seedlings as grown out of doors in this way at Floral Park, where more than a hundred acres are devoted to the cultivation of gladioli in all stages; both Mr. Childs and Mr. Allen, who own these farms have lots of greenhouses, hotbeds, and frames, but they never sow gladioli seeds in them.

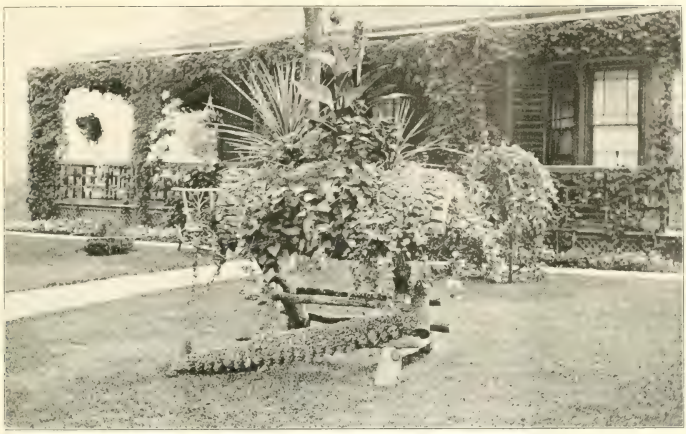
SAW BUCK, LOG AND SAW.

In the construction of this flower stand it was intended to depart as far as possible from conventional forms and at the same time preserve the utility requisite for vigorous growth. A hollow freshly fallen poplar tree furnished a log nearly two and a half feet in diameter of which a piece six feet in length was taken. The decayed center was taken out and an opening, one by four feet, made in that side chosen as the top when in position. As the interior opening extended clear through the log, partitions were placed at each end of the top opening, entirely filling the hollow center, thus shutting in what might be termed the earth basket of the main display. This left a hollow space one foot in length at each end. Within six inches of the end it was closed up half the height of the opening, a piece of board half moon shape being used, covered on the exposed surface with cedar post bark. Thus we had three receptacles, which were filled with earth well mixed with old manure and horn shaving.

The saw buck was made in ordinary form of white oak, some four inches in diameter, retaining the bark. This must be made strong, as the weight it bears is considerable. The saw is composed of sedums and sempervivums. The form is first made of ¼-inch pine. Three inch nails are driven in this wood saw, all along the margins within a few inches of each other, slanting slightly outwards. Twine is then woven in and out among the nails, thus forming a twine "fence" along the margin about two inches high. Clay loam some what damp is then pressed in between the space enclosed by the nails. The roots of the sedums are twisted between the fingers until they are pointed. A dibbler the size of a lead pencil makes the hole to receive the pointed roots. Those on the sides or teeth points are held in place by wooden toothpicks. A piece of a broomstick studded with nails standing out from the wood an inch, between which the earth is pressed, forms the foundation of the handles. After the plants have been dibbled into these, they are wrapped with strong white thread and set away in a safe place for a week, to allow the roots to take hold. Were I to make the handles again I would use a spirally coiled wire to hold the soil and thus form handles of less diameter. The plants used were mainly *Dracæna indivisa*, canna Egandale, which was never without one or more open spikes all summer; variegated ground ivy (*Nepeta Glechoma variegata*) at the ends of the top opening lay over the log and blended splendidly with the gray of the bark, *Lophospermum scandens*, variegated vinca and a trailing nasturtium formed the drooping plants. At the ends planted back in the log, beyond the first bark covered portions were ferns, *Solanum jasminoides* and the annual *Thunbergia*. W. C. E.

KILLING OUT SORREL.

W. H. F., Cleveland, Ohio, writes: "The place I am now living on has been allowed to run for several years and as a result I found this summer all I wanted to do, in spare time, to keep the weeds down. Think I have gotten all in hand except what I call sorrel or sour grass, and so far that has the best of me. I have



SAW-BUCK, LOG AND SAW OF PLANTS, AT EGANDALE.

pulled up and cut down but it is still in possession. What can I do to get it out?"

Sorrel is one of the worst and most persistent weeds that infest our lawns, and one of the hardest to eradicate. It grows in poor or rich land, be it moist or dry, and we know of no preparation to spread on the land that will kill the sorrel and spare the grass. Get a long-toothed steel rake, and tear out and rake off every bit of sorrel you can get out of the grass, then top-dress the lawn with a compost of good loam and well rotted manure spreading it even, now sow some fresh grass seed consisting of one part red top, one part Rhode Island bent, and two parts Kentucky blue grass, with two pounds white clover to the bushel. Rake the ground lightly with a wooden-toothed rake to cover the seed a little, and roll firmly. Do this in earliest spring to give the grass a start over the sorrel. Do what you can in the way of surface feeding to encourage the grass to grow and in this way suppress the sorrel. Among cultivated crops clean and persistent cultivation, and raking off and removing the roots after every cultivating will kill it out in time. But it isn't an easy matter.

HYBRID CLEMATIS FROM SEED.

L. L. C., Fresno, Cal., writes: "During the past season I spent considerable money in the purchase of a large number of fine varieties of hybrid clematis. They all started to grow nicely but after a short period the leaves began to wilt, the result being that I have lost them all. I assume the cause to be the clematis disease which I have seen noticed in GARDENING. It was suggested to me by the firm from whom I purchased that I obtain seeds and try to get some plants in that manner. But I do not know to whom to apply and have thus far been unable to get any such seeds."

Under the name "Clematis, large flowering hybrids" we find them advertised by J. M. Thorburn & Co., 15 John street, New York. While seedlings are not exempt from the disease they are less liable to it than are transplanted named varieties. The seeds may take three, six, or twelve months to germinate. The small flowered sorts as *Flammula* and *paniculata* do not have the disease so far as we have noticed.

A GARDEN OF FLOWERS.

I have eight parallel beds 14x4 feet, with two feet of path between each, in which I wish to grow flowers for private use only in church and home decoration. The lot is 25x100 with full exposure on the east, north and south, with three story house and the usual board fence on the west. A wire fence gives free access to sun and air. I may not have the use of the lot for more than two or three years, so do not care much for permanent effects. The soil is excellent. The ground slopes slightly to the east, therefore I have made the beds run east and west. I had fairly good success last summer but my garden lacked variety and order. Plenty of flowers for cutting with an orderly arrangement helping to that end is what I want. I don't care for display bedding unless it may be had without additional expense or labor. G. F. W.

Mercer street New York.

While a four feet wide bed is all right for dwarf plants like China asters, 10-week stocks, pansies, pinks and the like, it isn't roomy enough when it comes to big things like dahlias, salvias, sunflowers, or a combination of plants, for them we would prefer six feet wide beds. By your arrangement you can grow a large assortment of plants, and get a supply of cut flowers all summer long, but you can hardly hope for a permanently tidy garden, because as certain plants fade they have got to be removed to make room for others, and this leaves a gap. Plants are of different natures, statures and duration, and order requires a knowledge beforehand of the material to be used, and forethought and decision, but variety can be had easily: First of all, map out your garden and your beds, then make a list of every kind of flower you want to grow and think can be grown in the beds. Now take the list and classify it, grouping the plants according to their size and habit, time of blooming, color of blossoms, etc. Along the board fence you could have sweet peas, Lobb's nasturtiums, flammula and Japanese panicled clematises, with a broad sheet of chicken wire netting in front of them to hold them up to the fence. You could plant an edging around all of the beds of some bordering plant, for instance pansies, double daisies, forget-me-nots, sea thrift, perennial candytuft, thyme, creeping bugle, moss pink, pyrethrums, and the like, or sow sweet alyssum, Drummond phlox, or mignonette or a margin of dwarf China asters; in fact mignonette or alyssum could be sown in summer too to replace the early flowers as pansies and daisies. The matter of size comes next. Large plants such as cannas, dahlias, cosmos, and the greater perennials as larkspur, *Pyrethrum uliginsum*, hollyhocks, foxgloves, and dwarf sunflowers should fill the far-away beds (if they aren't next the street), or else the back ends of all the beds, grading the plants lower as they reach to the other end. It may economise space to edge the tall plant beds with spring flowers as pansies or forget-me-nots, they will have lots of time to bloom before the big plants spread out to interfere with them; then the large ones will cover all the bed. While there is no need of keeping everything so strictly to itself as is done in a florist's place it is better to group the plants of a kind, for instance the phloxes, pyrethrums, gaillardias, tritomas, irises and anemones near together; the same with annuals. Verbenas stuck here and there all through the beds don't look pretty, but a bed or part of a bed carpeted

with them is becoming. Gladioli, and summer hyacinth are quite cheap now, and should be used plentifully both in groups by themselves and here and there among the other plants where gaps occur. In fact one of the chief points to be observed should be in keeping the gaps filled up as they occur with gladiolus bulbs, seeds as of mignonette and transplanted seedlings of annuals.

THE FLOWER GARDEN.

Let us take a walk around and look at the things. It is December 8, temperature 42°, fair, with indications of rain; since a week the weather has been lovely, dry, clear, bracing, and a few degrees of frost at night.

The perennial borders are bare and black, that is, all the deciduous plants have been cut down to the ground and the tops and loose dirt cleared away; the ground was levelled roughly, but neither dug nor forked, and a good top dressing of well rotted manure spread broadcast over it covering plants and ground. Hollyhocks, Oriental mulleins, acanthus and some others that we don't regard as being very hardy we heaped a good mulching around the plants and shook some littery stuff over them. All recently planted flowers of any kind and little seedlings too have been mulched overhead in this way, or a few evergreen branches are laid over them to protect them from frequent freezing and thawing and warm blinks of sunshine in winter.

All the Dutch bulbs, as hyacinths, tulips and narcissi saved over from last spring, likewise a good many that were bought this fall have been planted where they will look best, be most at home or most useful. But if you can get any of these bulbs yet, and the ground is open, plant them. We prefer to plant an inch deeper than common and not mulch the beds, than plant shallow and then cover with a mulching, because there is danger in leaving the mulching on so long in spring that the young plants begin to grow up through it and get bleached, then sun scalded. But in the case of montbretias, summer hyacinths (*candicans*), first year seedling gladioli or Japanese or California lilies we believe a heavy mulching of light material—enough to keep out hard frost—is beneficial.

Gaura Lindheimeri on light land is hardy with us, and both the old plant and numberless seedlings live over winter, but it is well to protect it with a mulching. *Plumbago Larpentæ*, also a hardy plant, needs a mulch for safety's sake, so does the ageratum-like mist flower, the double flowered sunflower and Maximilian's sunflower.

Arundo Donax has been cut over and its tall leafy stalks used for protecting trees; and the ground the roots are in has been mulched nearly a foot deep. We gathered the leaves of the pampas grass into a sheaf, then banked the plants around heavily with leaves and litter. Eulalia grasses are better if not cut down till spring, and mulched in the meantime, but for tidiness we cut them down, mulch about them heavily, and lay some coarse stuff over their crowns. A piece of old tar paper laid over the crowns to shed water is a great help.

Nothing could be better done than the way the wind blew and settled a lot of tree leaves about the yuccas, so we have left them there, and scattered a little coarse manure over the leaves to keep them in place. In spring we will have to clear both leaves and manure away. Although yuccas are hardy enough here, protecting their crowns in this way is of benefit to them.

The bamboos, as *Metake*, *aurea* and *nigra*, generally get along very well till February or March, and then may come a sudden cold spell of weather and kill their tops; but the roots are safe enough. We mulch the ground with tree leaves to make sure of no injury to the underground stems, and pile a lot of pine tree branches among the "grass" of the bamboos to try to save them.

We have lifted a lot of each variety of the tritomas and heeled them into a cold frame, for safety over winter, but we also have left a lot of them out of doors well mulched with tree leaves. Although they live over winter in the open ground when protected in this way, we get better satisfaction of those we lift and store in the frame.

VARIEGATED EUPHORBIA—YELLOW MORNING GLORY.

1. I see in GARDENING, November 1, reference made to a variegated *Euphorbia heterophylla*; I would like very much to secure a plant of this for my private garden, as I feel quite sure that it would color brilliantly in California. Can you assist me in getting it?

2. Several years ago when I visited you at Dosoris I saw a yellow ipomœa (morning glory). I have since tried to get seed of the variety but have failed, where can I get a few seeds of it?

E. E. S.

Leland Stanford, Jr. University, Palo Alto. Cal.

1. Write to Mr. A. W. Smith, Bank of South Western Georgia, Augusta, Ga.

2. We do not know who else has got it. Remind us of it next August, maybe we can help you then.

SEED OF MAMMOTH VERBENAS.—S. A. L. Ventura, Cal., asks: "Where can I procure a really fine strain of verbena seed, of the Mammoth variety?" Apply to W. Atlee Burpee, or H. A. Dreer of Philadelphia, or J. C. Vaughan of Chicago, they generally get hold of most every superfine strain to be obtained.

Chrysanthemums.

AN AMATEURS' CHRYSANTHEMUM SHOW.

The fourth annual chrysanthemum show of the Frederick Co., Md., Floricultural Society was held at Frederick City November 7, 8, and 9, and was a grand success. The exhibit made by amateurs was wonderful, nothing like it has been seen at any other show in the country. The specimen plants rivalled those of the professional florists, whilst the cut blooms were immense. A premium was given to amateurs for the best display of cut blooms grown in the open ground to stimulate outdoor cultivation, and the result was a fine exhibit of cut blooms of splendid size—from 6 to 12 inches in diameter. Just before the show the open yards of the members were a glorious sight, with their wealth of lovely chrysanthemums, this season being one of the best ever had here for outdoor culture.

The Armory in which the show was held is one of the largest in the state, about 60x400 feet, and it was crowded with exhibits. The lobby was transformed into a bower of autumn leaves, being in perfect keeping with the autumnal season. Inside the hall was encircled with cedar trees which made a pleasant background for the flowers, while overhead hundreds of Japaneses lanterns, parasols, banners, scrolls and bunting were used in the decorations; through all the electric light shown brilliantly and from one of the balconies stole forth the sweet strains of music.

This society is distinctly one of amateurs and had its beginning four years ago in a small store room, now it equals and surpasses some of the shows of the large cities. Only three professional florists made exhibits.

In the amateur class a lumber dealer carried off first premium for display of specimen plants, a photographer second premium; and a tobacconist third. Some of the varieties shown in this class were as follows: Chas. Davis, Golden Gate, Viviand-Morel, Niveus, Ivory, Minnie Wanamaker, E. Asmus, Geo. W. Childs, Pres. W. R. Smith, W. H. Lincoln, Robt. McInnes, Mrs Gov. Fifer, Dr. Callandreau, Mrs. J. G. Whilldin, H. Cannell, Jos. H. White, Eda Prass, and The Queen.

In the cut bloom class for amateurs, an ex-postmaster received first premium; a dry goods merchant second; a grocery salesman third, and another drygoods merchant fourth. In this class blooms of the following varieties of noble sizes were seen: Mrs. Senator Hearst, Golden Wedding, Jessica, Ivory, Mrs. F. Thompson, Emily Hitzeroth, The Queen, Edw Hatch, Hicks Arnold, E. Asmus, L'Enfant des deux Mondes, Mrs. Bullock, Lillian Russel, Mrs. Gerard, Coronet, Rohallion, Dr. Callandreau, Pres. W. R. Smith, Ada Spaulding, Mrs. E. G. Hill, G. F. Moseman and Geo. W. Childs.

The show was a success in every way and the amateurs of Frederick City challenge all others to make such a showing as they do; they claim they are at the top notch in the culture of one of Flora's most beautiful children.

C. E. KEMP.

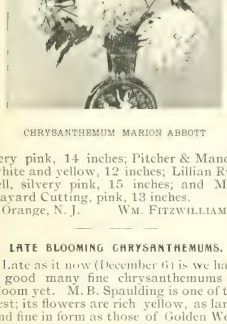
SINGLE-STEMMED PLANTS IN SIX-INCH POTS.

These are unusually good with us this year. Perhaps the way Mr. Farrell managed them may interest your readers: The cuttings were taken on the 15th of June and put in the sand on the greenhouse cutting bench to root. As soon as rooted they were potted into small pots, when these were filled with roots the plants were shifted into 4-inch pots, and lastly into 6-inch ones. The plants were grown to a single stem and disbudded to one bloom. They were grown indoors from start to finish, in a bright, airy greenhouse, no shading being used till the flowers opened.

The soil in which they were potted was good fibrous loam and about one-fourth of cow manure, into which there was mixed about one-twentieth of St. Louis soot. How we came to use the soot was in this way: We were somewhat afraid of club root on our roses, and were advised by Mr. John N May to use soot freely in the soil for our roses. Thinking if it were good for roses it could not be injurious to chrysanthemums, the latter were potted in part of the soil we used for the roses. The flowers have a very fine finish, and the foliage is large, glossy and dark, and clothes the stem from the surface of the pot to the flower stalk. Do you think the soot had a beneficial effect. [No doubt of it.—ED.]

After the plants filled their pots with roots they received liberal applications of liquid manure, into which we put about one ounce of sulphate of ammonia to a barrel of cow manure water.

The following are the actual measurements of some of the flowers of some of the varieties: Harry L. Sunderbruch, bright yellow, 19 inches across the flower; Mrs. E. D. Adams, white, 18 inches; Mrs. Geo. West, pink, 15 inches; Grace Chesney (our own seedling), bronze, 15 inches; Geo. W. Childs, crimson, 12 inches; Mr. Hicks Arnold, bronze, 15 inches; L'Enfant des Deux Mondes (white Louis Boehmer), 10 inches; Judge Hoitt, anemone, pale pink, 11 inches; Mrs. J. W. Morrissey, silvery pink, 14 inches; Pitcher & Manda, white and yellow, 12 inches; Lillian Russell, silvery pink, 15 inches; and Mrs. Bayard Cutting, pink, 13 inches.



CHRYSANTHEMUM MARION ABBOTT

Orange, N. J. WM. FITZWILLIAM.

LATE BLOOMING CHRYSANTHEMUMS.

Late as it now (December 6) is we have a good many fine chrysanthemums in bloom yet. M. B. Spaulding is one of the best; its flowers are rich yellow, as large and fine in form as those of Golden Wedding, and it has a good constitution and habit. For the last two years I have had Eva Hoyt in bloom as late as Christmas. They are the two best late yellows that we have unless Challenge be added, but unfortunately it has a habit of coming blind or crippled with me, in fact, the percentage of imperfect blooms is so great as to almost prohibit its use commercially.

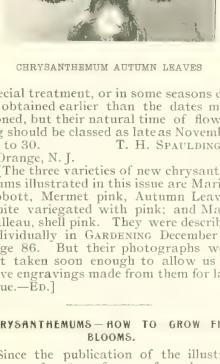
In white flowers Mrs. W. H. Trotter is large and fine with thick, close, notched petals, forming an immense solid ball. Its habit is stiff and erect. Fine for amateurs or exhibition but no use for shipping. Mrs. H. F. Spaulding is a superb, large, deep, solid pure white flower with a stiff stem, and opening the last week in November. It is good for commercial as well as private use. Mrs. J. Geo. Ils is an immense deep flower of the purest white, and a good keeper, but unfortunately on account of the large size of the bloom the stem is weak, and this acts against it. On account of its fine late blooming qualities, however, it will be grown by most people. Eiderdown is another fine late white, a solid bloom of the hairy petalled class. Its habit is good, stem stiff and rather tall Snowflake is a pure white, beautiful incurved flower at its best past midseason, and has the best of habit.

Among the pinks Wanlass as a late should be put in the van. The bloom is of the largest size, solid and full, and all that could be desired for any purpose. Its habit is tall which is rather against it unless one has plenty of room, but its good qualities out weigh this slight defect.

In bronzes Ingomar is a fine late variety, but on account of its tall straggling habit it will never be popular, as a late bloomer, however, we can find a place for it. Achilles has bold incurved flowers, soft shaded pink of a rather unpleasant shade similar to E. D. Hatch Its habit is dwarf and stem stiff and erect. The variety will be valued for its late flowers. James Comley is a magnificent oddity with large blooms having long drooping petals of a deep magenta pink heavily striped the whole length with a band of white or delicate rose pink, and opening about December 1. A. H. Le Roy is a fine variety for any purpose, and one of the latest we have got; the color of its flowers is a beautiful rich dark shade. And the form and habit of the plant are perfect.

In dark varieties I know of none that can be called extra late unless it be Brigand. Its color is the deepest crimson similar in shade to Cullingfordii. It was awarded a Columbian medal at Chicago. Octoroon, an extra large flower, ox-blood red color with reverse of petal a shade lighter, was in perfection with me November 30.

Any or all of the above varieties, by special treatment, or in some seasons can be obtained earlier than the dates mentioned, but their natural time of flowering should be classed as late as November 20 to 30. T. H. SPAULDING.



CHRYSANTHEMUM AUTUMN LEAVES

Orange, N. J.

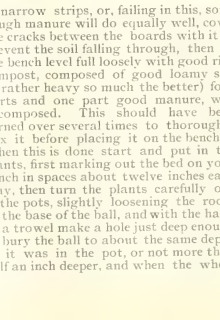
[The three varieties of new chrysanthemums illustrated in this issue are Marion Abbott, Mermet pink, Autumn Leaves, white variegated with pink; and Marie Valleau, shell pink. They were described individually in GARDENING December 1, page 86. But their photographs were not taken soon enough to allow us to have engravings made from them for last issue.—ED.]

CHRYSANTHEMUMS—HOW TO GROW FINE BLOOMS.

Since the publication of the illustrations and notes of some of my chrysanthemums in GARDENING (November 15) I have received many inquiries for instructions how to produce such flowers, also how to grow them in pots, etc., and as I have not time to answer each individually I thought a few plain remarks in your paper would not only answer all, but would perhaps be of some service to others of your many readers who might wish to have a few plants to make their homes more bright and cheerful at a season when we have very little in bloom in the open garden.

For extra fine specimen flowers, such as illustrated, the bench system of growing them will give very much the best results with the least trouble. For this method a greenhouse is necessary. The size can be regulated according to the number of blooms wanted, so long as it has a clear headway of five feet between the bench and the glass, though some of the dwarfer varieties can be grown well with less head room. Where such a greenhouse is available have a bench made at any height from the ground that it may be desirable and in a position which will ensure all the light possible for the plants, and be particular to provide ample drainage. In making such a bench bearers of any size can be used providing they are strong enough to carry the weight. For a bench four feet wide pieces of timber two by four inches are strong enough, if wider they should be proportionately heavier; 2x6 is generally strong enough for all ordinary benches if the supports or posts are placed upon something solid —and the bearers should be not over three feet six inches apart. On these nail six-inch boards with an opening between each of not less than three-quarters of an inch; the sides should run down solid on the bearings, this leaves five inches for soil.

The plants should be propagated for this purpose about the middle of April, and as soon as rooted potted into 2-inch pots, using clean fresh soil with scarcely any manure in it, this induces slow, sturdy growth. As soon as these pots are well filled with roots and before the plant gets at all stunted in its growth they should be shifted into one size larger pots, say 3-inch, using the same kind of soil. By the time this is filled with roots it will be the end of June or first of July, time to plant them in the bench. Presuming the bench is already built take thin sod, cut in narrow strips, or, failing in this, some rough manure will do equally well, cover the cracks between the boards with it to prevent the soil falling through, then fill the bench level full loosely with good rich compost, composed of good loamy soil (if rather heavy so much the better) four parts and one part good manure, well decomposed. This should have been turned over several times to thoroughly mix it before placing it on the benches. When this is done start and put in the plants, first marking out the bed on your bench in spaces about twelve inches each way, then turn the plants carefully out of the pots, slightly loosening the roots at the base of the ball, and with the hand or a trowel make a hole just deep enough to bury the ball to about the same depth as it was in the pot, or not more than half an inch deeper, and when the whole



CHRYSANTHEMUM MARIE VALLEAU

is planted go over and press the soil as firmly as possible, then give the whole enough water to moisten it as deep as the roots are. Syringe them at least once each day from this time on till the buds are almost ready to show color, unless very stormy or cold. In selecting the plants be careful to keep the dwarf growing varieties as near together as possible, and the tall growing varieties should be placed in the center of the house.

From the time of planting onward the plants will grow very rapidly, and as soon as they have started to grow in the new soil each plant should be pinched back, say four or five eyes from the top. This will make them break from several eyes; select from these three of the strongest and most even in growth (pull all the others off) and encourage them to grow on steadily without check; do not stop them any more. During all this time and until they are through blooming great care must be taken to keep them clear from all insects. Give all the air possible day and night in hot weather. As soon as the plants get fairly started after being pinched they should be staked or supported in some way; give each shoot equal room to develop. When the buds are about the size of peas they should all be very carefully picked out except one to each shoot. Those varieties being recommended as best on crown buds should have all others removed, those advised for terminal buds means that the crown or first bud shown should be picked out and the next bud showing retained for blooming. During the period the plants are setting their buds they should never be over watered at the roots, as this is the critical period of their growth. When the disbudding is all finished and the bench nicely cleaned over, all weeds, etc. cleared off, give a thick mulching of fine manure and water when required only. Keep the shoots carefully tied as required and when the blooms unfold their gorgeous beauty you will be well repaid for the little extra trouble given to obtain them. Nearly every variety generally grown to-day is adapted to this system of culture, though of course some are better than others, but by a careful selection of colors suitable for early, mid-season and late, even a small greenhouse can be made exceedingly attractive from early October to December. I will defer that part relating to pot culture, etc. for another issue.

Summit, N. J. JOHN N. MAY.

CROWN BUDS OF CHRYSANTHEMUMS.

F. N. B., Indiana, asks what is meant by "crown buds," page 69: "Crown bud" means that after a plant has been stopped in the summer and the shoots allowed to grow on without further stopping the first bud formed is the crown bud, and where it is advised to grow certain varieties on crown buds it means that this bud should be the one selected and left to develop; all others on the shoot should be carefully picked out as soon as they can be handled, also the lateral shoots which start out down the stem. Where a variety is advised as best on terminal buds it means that the crown bud above noted should be picked out as soon as it is large enough. This will cause several shoots to start out just below it which will grow from one to two inches and then produce one or more buds in a cluster; the largest or most prominent of these is what is generally called the terminal bud and is the one that should be selected to produce the flower; all others also all shoots, should be carefully removed as soon as possible to throw the strength of the shoot into one flower, if really fine exhibition flowers are to be the desideratum. This of course only applies to cases where one flower is to be grown to one shoot, and generally only two or three to each plant.

Summit, N. J. JOHN N. MAY.

NEW CHRYSANTHEMUMS.

Mr. L. A. Martin, Passaic Co., N. J., sends us some blossoms. He writes: "No. 1 is a last year's seedling, a splendid grower, with stiff stems and fine foliage, and massive ochre yellow flowers that last a long time in perfection. No. 2, also a last year's seedling is of a fine crimson color. No. 3, is a part white and part yellow flowered sport of Mabel Simpkins I got last year, am trying to get it all yellow. No. 4 is a sport of Gladette (salmon pink), and No. 5 is a this year's seedling. What do you think of them?"

No. 1 is a massive, very full, stiff-necked fine, bold flower of good color. It is worth keeping. No. 2. Try again. Brilliant crimson above, paler underneath. Not quite full enough and is a little weak in the neck. No. 3, like its parent is a handsome flower, but keep at it till you get the pure yellow.

No. 4 is a very full-headed stiff-stemmed flower of a peculiar purplish crimson shade, but the color is not a favorite one. No. 5 is a pretty golden bronze flower showing the eye, and a little weak in the neck. It is hardly good enough to keep.

Roses.

PLANTING ROSES.

A subscriber St. Louis, writes: "I want to set out some roses in the spring. Eight or ten inches below the surface of the ground is red clay and I can not afford to trench it, I thought of making a hole say four or five feet deep and two wide, and in the bottom put eight or ten inches of broken pottery or brick for drainage and fill in with good rich earth. Do you think that would answer?

Very well. But we wouldn't go so deep. Throw out the bed three feet deep; then fill it up a foot deep with clean stones, brickbats and other rubble, keeping the larger ones in the bottom and the smaller ones at top. Over that spread a layer of straw, hay, sedge or similar material to keep the dirt from falling in among the rubble to choke the drainage; and fill up with good loam Be sure, however, that, even then, means are provided for the water to drain away from the bed, else instead of draining it you may be simply digging a water cistern; better have no hole than do that.

LA FRANCE AS A HARDY ROSE.

J. D. W., Southern Illinois, asks: "Is La France rose better for growing in the open ground when budded? I have bought lots of them and never had but one to grow and bloom thrifty, so cannot account for it."

La France blooms best with us on its own roots, and it blooms very freely too. When budded it is hard to protect it even when budded very low. Without protection La France does not do well. We protect it by hilling eighteen to twenty-four inches with soil then mulching with long stable manure. J. GREGORY.

Bloomington, Ill.

Trees and Shrubs.

FINE FOLIAGE IN FALL.

The handsomest bit of coloring on my grounds this fall was given by a quartette of easily grown and perfectly hardy shrubs. Commencing early in September *Acer Ginnala*, a small maple from the Amur River, put on its harlequin attire and opened up the ball in charming colors of reds, yellow and even black, furnishing daintily colored leaves for wall or table decoration. Following it came the yellow leaved hop tree (*Ptelia trifoliata aurea*) always attractive, that during the summer is charming in its shadings from the light yellow of the new growth to the deep green of the older leaves, but now assuming the brightest lemon in all its parts, and retaining its leaves with persistency. *Berberis Thunbergii* appears in various shades of salmon and terra cotta, enlivened by the scarlet berries that fringe the semi-pendent stems in profusion. But brighter far, and more vivid in its coloring than all these, is the crimson robed winged euonymus (*E. alatus*) a choice hardy shrub deserving a place of honor in all collections. The maple and the hop are small trees but in nature of habit can be classed among the shrubs. Can you tell us the habitat of the euonymus?

Highland Park, Ills. W. C. EGAN.

A broad spreading, free-growing, but dense shrub whose arms are inclined to spread out with a drooping tendency. The wood buds are bright red in spring, the foliage is moderately small but pretty and it colors beautifully in October. Bark scale is exceedingly destructive on deciduous euonymuses but this species seems to enjoy comparative immunity from it. For brilliantly colored foliage there is a wild goose plum tree in the orchard here that eclipses everything else in the garden just now.

A FEW DESIRABLE SHRUBS.

Tecoma stans is a very decorative lawn plant stately in appearance and with vivid green foliage and golden-yellow, trumpet shaped blossoms. It blooms continuously and profusely and its branches are often weighted down with its wealth of flowers. If cut down by frost it soon grows up again. Its blossoms are followed by peculiarly shaped fruit each of which contains a hard shelled seed which when planted germinates very readily. The plant is also increased by root division and from cuttings. When in the prime of its beauty, that is when covered with blossoms and fruit it calls forth exclamations of praise from all who behold it.

Abelia rupestris is a shrub possessing so many sterling qualities that it deserves to be more extensively cultivated. It is always in bloom unless cut back by frost. Its trumpet shaped blossoms are borne in great profusion and are very attractive to insect life, as insects are continually hovering over the flowers and sipping their sweets. Cuttings of it strike very readily, and commence to bloom while in thumb pots. A symmetrical specimen is a fine addition to any lawn. It is also a very desirable window plant.

Cassia Braziliensis, a native of South America, as its name indicates, is a shrub of rare beauty. Its flowers are golden yellow. Its foliage resembles that of the locust. At the approach of sundown it folds its leaves, which gives it a peculiar appearance.

Metrosideros speciosa (Bottle Brush) is a very attractive shrub; bearing its scarlet blossoms in crowded spikes. In blossoming time it is a mass of flowers, calling forth praise from all who see it. It bears seeds, which germinate readily.

Florida. E.

SOME VERY HARDY TREES.

An Asiatic poplar, *P. Certensis*, will grow ten feet high in three years from cuttings; and a curious thing is that at that age one grown from a cutting can not be distinguished, as to its roots, from a seedling. It is as upright as a soldier, and means business. It is said to be a valuable timber tree, and is quite at home in northern Vermont. I believe that it is worthy of extensive planting.

I see it stated that the red willows of Eastern Europe, the bark of which is used for tanning the peculiar "Russia leather," is also used by the Russians as a timber tree. Loudon endorses its usefulness for finishing lumber, floors and boat building. It would seem that this ought to be a valuable tree for northern New England and Canada. We must have rapidly growing trees of this class soon or go to building with brick and stone.

Elæagnus angustifolius proves perfectly hardy and a rapid grower in northeastern Vermont. It is a very striking tree; every one wants to know what it is, but does not want to handle it much, after one trial. Its thorns are sharp as needles, and its small, thick, olive-green foliage hides them from notice. Mine has not fruited, though about eight feet high. It holds its withered foliage against the hardest winds nearly all winter.

Shepherdia argentea I have had in fruit for a number of years. It is a tall, thin-branched shrub, or small tree; no wise attractive except for its oddity. I do not find the fruit good, or showy. We much prefer the barberri s growing near. The male and female flowers are on separate plants. T. H. HOSKINS.

Vermont.

A CALIFORNIA PRIVET HEDGE.

A subscriber, Oscawana, N. Y, "planted a hedge of this last year and it grew well this season; and I planted one this fall that I would like to keep low, say two feet. Please let me know when to prune them."

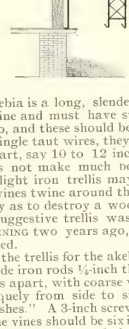
The year-old one may be pruned now or you may wait till early spring and then prune it pretty hard and prune it again in June. The newly set out one should be p uned at once. Cut the plants down to within four or six inches of the ground and with a hoe or spade draw a little earth up to or over them to protect them in winter, and a few branches or some litter laid over them along the row for the same purpose will also be good. Remove the mulching and covering in early spring and cultivate the ground and keep it clean. We don't like the idea of a two feet California privet hedge, you should use a dwarfer plant as box, euonymus, or Thunberg's barberry; the privet wants to grow tall, say five feet or more. To keep it dwarf requires pruning it in summer two or three times; winter pruning promotes vigorous growth, summer pruning tends to dwarfness, stockiness, or fruitfulness.

PAULOWNIA HARDY IN ONTARIO.

I note Mr. McMillan's letter in GARDENING, November 1, page 51, in relation to *Paulownia imperialis* not being hardy at Buffalo. I may say I have found it to be quite hardy at Niagara-on-the-lake, Lincoln County, Ontario. None of the young wood has been killed back during the past three winters. The growth is healthy, and the wood ripens well. Protect the roots in winter with a mulch of leaves and earth. Our soil is a rather heavy clay which has been well drained and trenched. Five degrees below zero is our extreme cold weather there. C. H.

A TRELLIS FOR AN AKEBIA.

E. W. C., Oxford, N. Y., writes: "I wish to train a dozen *Akebia quinata* on a stone building. What sort of support should they have? How wide should it be, if the plants are set far apart? How close should they be set, to make a cover for the wall? I have some plants growing for a year on a single wire twisted to a 3-inch spiral, but doubt if that is good."



The akebia is a long, slender, twining, woody vine and must have supports to keep it up, and these should be of iron. If, simply, single taut wires, they should not be far apart, say 10 to 12 inches, for the vine does not make much body, but a wire or light iron trellis may be better. The old vines twine around their support so tightly as to destroy a wooden trellis. Quite a suggestive trellis was illustrated in GARDENING two years ago, and is here reproduced.

This, "the trellis for the akebia consists of two side iron rods ¼-inch thick, placed six inches apart, with coarse wires crossing obliquely from side to side forming large meshes." A 3-inch screw eye is too short, the vines should be six inches away from the wall; an iron rod should be run lengthwise of the building, at top and bottom of the wall, and about six inches out from it, and to these the trellises should be supported at top and bottom. Plant 12 to 18 inches apart. When closely planted the vines soon run up and cover the trellis; when further apart, head back the vines a foot from the ground and get them to throw out two, three or more shoots instead of one.

DAPHNE MEZEREUM (*Common Mezereon*).—B. B., Buda, Florida, has been trying hard for years to raise a plant of this shrub from seeds sent to him from Europe and hasn't yet succeeded in getting a plant. He also "fails to see it named in any of the catalogues of the principal firms."

Don't look in a seed or florists' catalogue for such things; send for the catalogues of the nurserymen and hardy plant men who advertise in GARDENING, and you will find what you want. But you needn't bother about it in Florida, it isn't very well suited for that part of the country. It is naturalized in great quantity in the woods in the Niagara Falls Park, and is one of the prettiest and sweetest little shrubs we have in earliest spring.

Orchids.

ORCHID QUESTIONS.

A. S., Placentia, Cal., asks: Should cyrtopodiums and bletias be dried off altogether in winter? Is the bloom of *Cyrtopodium punctatum* produced in winter or summer? Should *Chysis bractescens* be dried off in winter?

Cyrtopodium and bletias should rest through the winter months in a temperature of 50° to 55°. Cyrtopodium flowers come with the new growth in spring. The plants enjoy watering with weak liquid manure when their growth and flowers are well out. They should be well ripened in strong light before resting. *Chysis bractescens* should now be ripe enough to put into a cool house for the winter. After a few weeks rest it may be brought into flower at any time by putting it into strong heat.

WM. MATHEWS.

CYPRIPEDIUM INSIGNE is the orchid of December just as much as the chrysanthemum is the queen of November. It is one of the easiest to grow and surest to blossom and the flowers last in good condition on the plant in a cool greenhouse for three to four weeks, and at least two weeks when cut. If there is one orchid more than another an amateur can grow, even without a greenhouse, this is the one, and it is one of the least expensive. Commercial florists are growing it in large quantity for cut flowers. And the beauty of it is that it lasts forever, the plants getting bigger and bearing more flowers every year.

The Greenhouse.

THE GREENHOUSE.

Chrysanthemums are on the wane. They used to be November flowers, but now they cover the months of October and November and step into December. We wish we could extend their season to Christmas but on the threshold of December they are met by leaf spot and mildew to such an extent as practically to render them unreliable as a crop. But we hope florists will soon get a set of varieties that will continue in good health till the holidays.

Cut down and remove all chrysanthemums as soon as they begin to fade, and let their place be filled with stevias, callas, marguerites and other seasonable flowers. But be careful not to smother up small plants like primulas or cyclamen among large ones as eupatoriums or streptosolens. While we cannot spare much room for anything we should be sure to give every plant room enough for the health of its leaves as well as for its flowers. Arrange the lesser growing plants as Chinese and obconica primroses, cyclamen, calceolarias, and cinerarias, on benches or shelves near the glass, but not one of these needs bright sunshine, in fact they are better with a thin shading from it.

At this time of the year damp is often bad in greenhouses, spoiling the blossoms and quickly spotting the leaves where

petals fall on to them. To avoid this water the plants in the forenoon giving abundance to moisten the roots, but don't spill any on the benches or floors if practicable. A night temperature of about 50° with an advance of 10° or 15° in the day is good, and to maintain it so little artificial heat is needed that there is very little fear of a parching air.

Ventilate a little every fine day, opening early in the forenoon and shutting up early in the afternoon, this saves considerable sun heat, is better for the plants, and economises fire heat.

In firing, don't wait till the temperature falls to 55° or 50° before starting the fire, it is much better to start the fire early and keep the heat up while it is up than let it down too low and then fire up hard to drive the heat up.

In a warm greenhouse, say where a night temperature of 60° or 65° is kept up, and in which palms, screw pines, crotons, aralias, ixoras, allamandas, anthuriums, and marantas are grown, we must spill a good deal of water about the benches and floors as well as give it to the plants; in fact we should syringe the plants overhead and in among them every forenoon, and in fine sunny weather early in the afternoon too.

Keep the tubers of the tuberous begonias dry and in a cool place, the "roots" of achimenes, gloxinias, gesneras and caladiums that are also dry and stored by should be kept rather warmer, say in a temperature of 55° to 60°. As leaves of the amaryllises and crinums that were piled on their sides out of sight under the back benches where they could be kept dry are drying off, pick them off for tidyness sake. It is quite right that they should all die away.

Roman hyacinths and paper white narcissus may be had in bloom every day from now till April if we have plants enough to keep up a succession. Bring some of each into a warm place every week. A few each of Harrisii and longiflorum lilies may now be allowed to come along slowly by having them in a cool greenhouse, and bring in a few at a time into warmer quarters to hasten their blooming. The earliest freesias should be in bloom by Christmas. Stick four or five neat slender stakes into each pot near the outside and run a piece of matting around them to fence in and support the freesias. Bring some pots of it from a frame or cool greenhouse into a warm one every ten or fourteen days to keep up a succession of flowers.

A good many begonias are now in bloom. While they like a little warmth, good light but not bright sunshine, and a fair amount of water at the root they dislike watering overhead at this time of year.

Libonias and sericographis are very accommodating plants and seem to be perfectly at home in pots along the pathways and on shelves by the edges of the paths but under the main benches.

Summer propagated scarlet geraniums grown on in pots are in good blossom, but those lifted and potted in September haven't recovered enough yet to bloom.

They will begin to show cheerfulness in January. Show pelargoniums or "Lady Washington geraniums" as they are often called should be kept cool, only moderately moist at the root, and perfectly dry over head. They are not required in bloom before next May, so what's the use of hurrying them up now and using up room of other plants require.

Nasturtiums of the Lobbianum section if grown in pots or boxes and run up on strings along the rafters, yield many blossoms all winter. Give them lots of water, but not much soil, over feeding means in their case over luxuriance of foliage rather than superabundance of flowers. They will bloom all winter. Poinsettias will soon be at their gayest. Look out for mealy bugs, if these pests infest the heads of bracts they spoil the flowers, and it is hard to dislodge them

Allamandas if in warm moist genial quarters bloom all the year round, but we cut them in now to keep them from shading the other plants, and keep them pretty dry to check their growth. In spring the earth their roots are in will be soaked with water and the allamanda allowed to run and bloom at will. Much the same with the running clerodendrons.

FAVORITE PLANTS FOR CHRISTMAS.

Not a bit of it, it isn't a question of roses and carnations only with the people at Christmas, potted plants are in unusual demand, and a greater variety of kinds is being asked for every year. In fact most any plant that is pretty, clean, well-grown and furnished, and looks hardy enough to stand well in the dry air and heat of our dwelling houses finds favor with the people.

In the matter of Christmas presents folks sometimes rack their brains for what to get that will be beautiful, useful, appropriate and esteemed by the recipient and find what they are looking for in potted plants. A handsome cyclamen or Chinese primrose in bloom, an ardisia loaded with scarlet berries, a rubber plant with big leathery foliage to the ground, or a fresh and graceful palm is something every one would admire and appreciate.

Perhaps palms take the lead. The ones most asked for are *Areca lutescens*, *A. Baueri*, *Cocos Weddeliana*, *Kentia Belmoreana*, and *K. Forsteriana*, they are elegant feather palms and fine for house decoration; and are being called for in preference to the fan palm *Latania Borbonica*. The little compact fan palm *Livistona rotundifolia* is selling well. Early in the fall we had a large greenhouse nearly full of it, and now there isn't a plant of it big enough for use left on the place. Although it is comparatively new in the trade the people have taken to it kindly. As yet it is scarce. *Phœnix rupicola*, an elegant arching feather palm is also a favorite. *Phœnix rupicola* being one of the lightest and airiest of palms, is always sought for. *Pinanga Kuhlii* when well grown also pleases the people. *Geonoma gracilis* is a beautiful little feather palm somewhat in the style of *Cocos Weddeliana* but a little heavier, and is esteemed for table decoration. Being somewhat expensive is the only thing that stands between *Rhapis humilis* and its general adoption by the people, for it is a pretty plant, and will thrive in dark rooms better than most palms.

FERNS.—We have nothing richer or more elegant and beautiful than *Adiantum Farleyense*, and although its propagation is being pushed with energy and large quantities are raised the supply is not enough. Nicely grown bunch plants of nephrolepsis, or as it is generally called sword fern, particularly of *N. exaltata*, and its variety *plumosa* are much esteemed for side tables, brackets, or for sunless windows.

Aralia filicifolia is a dainty little Polynesian shrub with deeply pinnatifid leaves, purple and green; and *Panax Victoriae* an allied little shrubby plant with elegantly divided and fringed foliage, variegated green and white, both make lovely table or side board plants, but they should be kept out of the draught.

Young plants of the Norfolk Island pine (*Araucaria excelsa*), one and one-half to four feet high perfect in form and symmetry are sold in great quantity. There are several distinct varieties of it, the bluish one called *glauca* having the preference. The larger ones will be used greatly as living Christmas trees, but after the holidays are over they will be retained for house decoration, for they are too beautiful and precious to treat with the disrespect we handle a spruce or silver fir. Seeing these perfect little specimens in the florists' stores one would scarcely credit it that when they attain their full development in their native country they make trees 150 feet high with timber trunks 20 feet around.

Well colored plants of *Aspidistra lurida variegata* always sell well in winter. It is one of the most accommodating of plants, and seems to grow well in heat or cold, sunshine or shade; in fact it and *Rhapis flabelliformis* are supposed to live in good health for a longer time in a dark shady room than most any other plants we have in common cultivation. It will stand 10° or 15° of frost with apparent unconcern.

Ardesia crenulata, a little evergreen shrub pot plant, loaded with scarlet berries is cheerful, appropriate, and timely, and the "Jerusalem cherry" (*Solanum capsicastrum*) and its dwarf (*nanum compactum*) variety, full of big bright orange scarlet berries are general favorites as house plants.

Small plants of *Cycas revoluta* with good heads of leaves, are bought by many.

There seems to have arisen a popular wave in favor of dracænas.

The rubber plant (*Ficus elastica*) is still a favorite house plant. There is a variegated leaved form of it, but it is not meeting with much favor.

Although crotons are very richly colored and desirable for decorations they are not apt to last in good condition as house plants for a long time as do rubber plants or palms, but they can be used very beautifully in table, mantel, and other decorations of that kind. The leaves, also cut leafy branches can be used to fine advantage arranged with fern fronds and cut flowers.

The cyclamen is a gem among house plants, the variety *giganteum* being the one mostly grown. It will be largely bought up this winter for Christmas presents, so will Chinese primroses.

We look upon azaleas more as Easter than Christmas plants, but this season several florists have made an extra effort to get a lot of azaleas into bloom for the holidays. F. L. ATKINS.

New Jersey.

FLOWERS AT CHRISTMAS.

Our collection of plants is so large, compared with our house room, that we have very little opportunity to grow many blooming plants, still we do have a few to cheer up the dull monotony of winter. The following will be in their glory at Christmas time: *Adhatoda Cydonefolia*, scarlet salvia, dwarf; *Crassula tridentata*, *Rivina humilis*, red berries; *Echeveria metallica*, *E. Brasiliensis*, red berries; begonias, several species; *B. aurantiaca*, yellow; oxalis in variety, *Solanum capsicastrum*, cyclamens, *Achania Malvaviscus*, stevias, *Olea fragrans*, bouvardias in variety, *Inga pulcherrima*, *Reinwardtia* (*Linum*) *trigyna*, *Jasminum offic-*

NEPHROLEPIS EXALTATA.

inale, lauristinus, *Cassia Tora*, cannas, especially Kaenigen Charlotte, which proves itself (with me) to be a very constant bloomer, also Chas. Henderson; *Lopezia miniata*, *Euphorbia* (*Poinsettia*) *pulcherrima*, anthuriums, allamandas, *Clerodendron Balfourianum*.

I do not care to have my bulbs very early, as there are so many things which enables one to get along without them.

J. GURNEY.

Missouri Botanical Garden, St. Louis.

HEATING A SMALL GREENHOUSE.—An Ohio subscriber has a greenhouse 20x10 feet and asks about a base burner boiler for heating it. We have had one of Hitchings & Co's. (233 Mercer street New York) in use for a good many years and it works admirably. Most makers of greenhouse boilers have similar contrivances for heating small glass houses.

A BOOK ABOUT PALMS.—S. L. wants to know the name of a good book about palms. Les Palmiers, etc., by Comte Oswald de Kerchove de Deuterghem, large 8vo., 228 wood cuts, and 40 chromoliths. Paris, J. Rothschild. It is an expensive work. M.

THE COLD FRAMES.

In the frames are violets, pansies, anemones, polyanthuses, forget-me-nots, daisies, Canterbury bells, and a host of other plants, young and old, for protection over winter. As we want violets all winter we wrap the frames around on the outside with a good bank of litter and cover the sashes with mats and shutters to keep out the frost. But let in the daylight and sunshine if you want lots of nice violets, and ventilate in fine weather. All the other plants will stand a good deal of frost. If we are only keeping them over for spring blooming we needn't exclude frost from them altogether; on the other hand, if we want to pick pansies, anemones, narcissi and forget-me-nots in winter we should wrap them up as tenderly as we do our violets.

The Fruit Garden.

HARDY GRAPES FOR BEGINNERS.

"Greenhorn," Pittsburg, Pa., writes: "Two years ago I asked a nurseryman to send me twelve best grapes for outdoor culture in this vicinity. He sent me three Black Hamburgh, three Niagara, three Vergennes and three Hartford. Shall I dig the Hamburghs out and plant others, and how about the Vergennes? What sort is the best early black for ordinary culture?"

Varieties of grapes that are "best" in one place may be poor enough in others and *vice versa*. As an outdoor grape Black Hamburgh is no use with you; Hartford Prolific is a good early grape, but with us Moore's Early and Worden are better; Vergennes is a comparatively new grape of good quality and promise and on account of its thick skin a fine late keeper. As general purpose easy to grow hardy grapes, however, we would recommend Green Mountain, greenish white, very early; Worden, black, moderately early; Concord, black, mid-season to late, everybody's never-fail grape; Niagara, greenish yellow, large, a good companion to and same season as Concord; Brighton, reddish purple, mid-season, and of excellent quality, but sometimes a little fickle in behavior; and Delaware, dark red, with small berries in close clusters. Delaware and Brighton may need a little extra care, but the others should prove hardy, healthy, vigorous and productive most anywhere. Rogers' hybrids, Salem for instance, are splendid grapes so far as quality is concerned, but we find them so subject to mildew diseases that we hesitate to recommend them to beginners.

THE KEIFFER PEAR ON LONG ISLAND.

About the middle of November Mr. Silas L. Albertson sent us a box of Keiffer pears with this note: "I send to you this day a box of Keiffer pears, express prepaid, hoping you will find them acceptable. Some specimens this year have been of good quality and others not, but I think this is partly on account of management in picking and storing. The Keiffer is the pear for bushels and dollars. I have 600 trees of this variety bearing and will add in the spring Clapp's Favorite, and Garber, and Hardy. In regard to cultivation I have no special method. The orchard is tilled with other crops, and the ground itself is naturally very good, situated in a hollow. The Keiffer seems to notice any peculiar conditions of soil more than any other pear I am acquainted with. On poor dry soil or in grass I have seen the fruit no larger than black walnuts, and yet the same tree removed to heavy moist soil will produce fine specimens. Where the soil is sandy it would be a good plan to keep the ground well mulched about the trees in summer."

We got the pears, a bushel of them, and they were the finest sample of Keiffers we ever saw. They weighed about 11 ounces each, and measured 10¼ inches around the middle, and 10½ to 11 inches around lengthwise. As dessert pears they were handsome and juicy, but with the sand pear flavor that is not liked as a raw fruit. Baked, they were delicious, so meaty, so juicy, and so good. Stewed they were excellent, tender, juicy, and of exceedingly pleasant flavor. The rich whitish amber color of the flesh is very enticing. Anjou (Beurre d' Anjou) is the best large dessert pear we are eating now, it too, makes the best cooking pear, except that it is too good for cooking, and next to it for baking or stewing comes this Keiffer.

BAKED PEARS are not a common dish, but you ought to try them. Cook them a full hour in a slow oven till they are done soft to the core. The skin should not break. The pear may have a dark leathery skin after being baked, but that is no criterion of the clear juicy meat within. The skins of pears part from the fruit with much greater ease than do the skins from apples.

I AM A SUBSCRIBER to GARDENING and find it is the best and most helpful paper I take. I take two others besides it. I find more help in GARDENING than in any other paper I have ever taken, and would not be without it. T. D.

Peace Dale, R. I.

GARDENING

WILLIAM FALCONER, Editor.

PUBLISHED THE 1ST AND 15TH OF EACH MONTH
— BY —
THE GARDENING COMPANY,
Monon Building, CHICAGO.

Subscription Price, $2.00 a Year—24 Numbers. Advertising rates on application.

Entered at Chicago postoffice as second-class matter.

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All communications relating to subscriptions, advertisements and other business matters should be addressed to The Gardening Company, Monon Building, Chicago, and all matters pertaining to the editorial department of the paper should be addressed to the Editor of GARDENING, Glen Cove, N. Y.

GARDENING is gotten up for its readers and in their interest, and it behooves you, one and all, to make it interesting. If it does not exactly suit your case, please write and tell us what you want. It is our desire to help you.

ASK ANY QUESTIONS you please about plants, flowers, fruits, vegetables or other practical gardening matters. We will take pleasure in answering them.

SEND US NOTES of your experience in gardening in any line; tell us of your successes that others may be enlightened and encouraged, and of your failures, perhaps we can help you.

SEND US PHOTOGRAPHS OR SKETCHES of your flowers, gardens, greenhouses, fruits, vegetables, or horticultural appliances that we may have them engraved for GARDENING.

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FREESIAS: HOW HARDY ARE THEY?—We grow some freesias planted out in rows in a cold frame over winter for the sake of the fine bulbs they make more than for the flowers we may get from them, protecting them in winter as we do violets. And we have a lot there this season too. Some nights ago we had an unusually cold snap, 15° of frost, and those freesias had been left uncovered, but it didn't hurt them, not a leaf has perished. Had the frost penetrated to the bulbs, however, and such hard freezing continued for a few days it would, undoubtedly, have injured the freesias. It often is not the intensity of the frost for a short time so much as less frost for a long time that injures plants.

AMERICAN FLOWER STORES.—Probably nowhere else in the world are the first-class retail florists' stores so attractively and beautifully gotten up with plants and flowers or so brilliantly lighted up in the evening as they are in this country, and notably in New York. And not only are the flowers the very finest—even a selection of the finest—that can be produced, but the exceedingly pretty, neat and tasteful way in which they are put up in boxes to be delivered to customers makes the flowers appear doubly fresh and choice; indeed, on opening the box one often has a feeling that it is a pity to disturb the blossoms, they look so sweet and dainty nestling there.

CALLA LILIES.—A florist showed us a large greenhouse filled with these planted out in a bed on the center bench; one-half of the bed had been planted with roots that had been kept dry over summer, and the other with roots that had been planted out of doors all summer. In both cases the plants were reduced to single strong "bulbs," the "bulblets" being removed. As they appeared then (December 4) results were strongly in favor of those that had been kept dry over summer. We grow them in both ways. In the case of very strong plants and if we want early flowers we dry them off in summer; but in the case of weak plants we would plant them out over summer. We lift them about the first of August, pot them and stand them aside till October, by which time they recover very well.

CERTIFICATED CHRYSANTHEMUMS.—The committees appointed by the American Chrysanthemum Society to examine and report on the new seedling chrysanthemums have recommended the following varieties for the Society's Certificate: Miss Gladys Spaulding, white, incurved Chinese; Helen Bloodgood, clear pink, incurved Japanese; Jeannie Falconer, yellow, incurved, Japanese; Miss Margaret Newbold, pink, incurved, Japanese; Oak Shade, purplish pink; Mrs. Edwin H. Trotter, white, reflexed, Japanese; Miss Louise D. Black, bright yellow, incurved, Chinese; Mrs. Wm. H. Rand, orange yellow, reflexed, Japanese; Fred Walz, lilac pink, incurved, Japanese; New York, white tinged with lemon, incurved, Japanese; Francis B. Hayes, rose pink, incurved, Japanese; Gold Fever, yellow, incurved, Chinese; Henry Rieman, deep yellow, Chinese; Elma O. Farrell, rose pink, reflexed, Japanese; and Mrs. Wm. H. Kemble, white, divided petals, Japanese.

ANJOU PEARS.—We have received from Ellwanger & Barry of Rochester, N. Y., a box of Anjou pears They are fine fruit averaging half a pound each and in prime condition for shipping and using. We look upon this pear as the finest dessert variety we have at this time of the year. The tree is a capital grower and sure bearer, and the fruit runs even and large. Of course a loamy soil or one inclined to be clayey is regarded as being the best for pears, but here on the light soils of Long Island the Anjou pear is one of the most prolific and satisfactory sorts we grow With us the fruit begins to ripen about the first of November, and by keeping it in a cool room or cellar on shelves or in drawers and each specimen wrapped in a piece of dry soft paper it may be kept in fine form till Christmas or New Years. The American Pomological Society classes it as the fourth in the list of pears for general cultivation. Bartlett is first, Angoulême second, Seckel third, and Anjou fourth. With us it is far better than Angoulême, and on light land stands next to Bartlett among those named. A dish of it, engraved from a photograph, was shown in GARDENING January 1, '93.

DEAN HOLE ROSE is a sport obtained by J. H. Taylor, a florist of Bayside, L. I. from Madame Caroline Testout. The color is white tinted with a warm creamy shade in the centre. It was introduced to us at a dinner given in New York, November 14, to Dean Hole by a few of his horticultural friends, and there named Dean Hole in compliment to the honored guest. Beyond that the blossom was a beautiful one we can tell very little about this new rose, but it comes of an excellent parent. Madame C. Testout is a hybrid tea rose, not hardy in the north, but now largely grown in greenhouses for winter flowers. Its color is a clear satiny rose and it is quite double for its class, and highly fragrant. A good many years ago a very beautiful and brilliant H. P. rose was named S. Reynolds Hole, but while it is still one of the very best hardy roses in Europe, it isn't satisfactory with us here. It is not in roses alone that our florists are honoring the Dean, we find they have also named a beautiful new white chrysanthemum and a yellow carnation in compliment to him.

THE JAPANESE POISON IVY.—Under the name of *Ampelopsis Japonica* a correspondent of the London *Garden* writes as follows: "From the time the buds burst in early summer until the leaves fall in autumn the foliage of this is always beautiful. Through the summer months the leaves, which are trifoliate, present many shades of green, and in autumn they assume shades of yellow, orange and carmine, many being marked with all three colors. The color is not so rich as that of *A. Veitchii*, but is equally beautiful. The two, however, do not come into competition, for whereas *A. Veitchii* requires a wall to which to cling, the other is a spreading deciduous shrub, and, as a decorative hardy plant, possesses possibilities of the highest order." Come now, the truth of the matter is this: what you call "*Ampelopsis Japonica*" is nothing more or less than the Japanese form of our vile but beautiful vine, the poison ivy, *Rhus Toxicodendron*. What sane man, the father of a family of children, would plant that baneful pest around his home?

THE GOLDEN MAYBERRY, a new raspberry, was introduced to us last spring as a rare and valuable new fruit, at the high price of $5 a plant. The disseminator claimed that it was a month earlier than other raspberries, and that the berries were golden yellow, sweet and luscious; also that the bushes are hardy, vigorous and productive. About the middle of last June we saw the stock of it growing in the field, and picked of the fruit and ate it; this was before we had a ripe raspberry of any kind at home, and really they were delightful. That the plants are thrifty is also sure enough, for we were there again the other day and saw them being dug up—thousands of them. Of course before we can pass an opinion on its general utility we want to know how it behaves in different parts of the country and under different cultural conditions, but from what we have seen of it we feel justified in regarding it quite favorably.

SUCH A BIG PRICE is practically prohibitory, and it is meant to be, but it gives the vendor a year's time in advertising and also an opportunity to increase his stock to a degree when he can afford to dispose of it at a reasonable figure.

LANDSCAPE WORK.—One of our readers has a garden to lay out and asks us what we would charge for giving him a plan for it. Our correspondent is on the right track. Anyone having a nice house and a piece of ground around it, should have the garden laid out in the best, most tasteful and convenient, and prettiest way possible. Properly laid out to begin with it is right forever, make a botch of it to begin with and it is probably wrong forever. And the little it will cost you now to have it done well will be a good investment, and as years pass by and the beauties of your home grounds mature, you will appreciate them more and more, and they will add to the value of your property. General plans such as we give in GARDENING (and no more beautiful or rational ones have ever been published) are suggestive only. No man who never saw your place can give you a true plan for it, no matter what he may insist to the contrary. Our practical duties at Dosoris and GARDENING completely occupy our time and we are unable to do any outside work. But we can confidently recommend Mr. J. Wilkinson Elliott, of Pittsburg, Pa., the designer of the plans that have appeared in this journal, as a man of good common sense and excellent taste.

THE STINGING PRIMROSE (*Primula obconica*): WHY?—When this little primrose was first introduced to cultivation its beauty, profusion and usefulness and the fact that it was so easily raised from seed appealed so forcibly to florists and amateurs, that it at once became a favorite and was widely and extensively grown. But the poisoned condition of the hands of many of the gardeners and florists who handled it in growing it or gathering its flowers soon brought it into disrepute. The poisoning appeared as an eczematous inflammation of the parts of the skin of the hands or arms touched by the plants, caused by the jointed glandular hairs of the leaves. The irritation was not perceptible at once as it would be in the case of a stinging nettle, but after an hour or so, and it continued for several days, a week or more. Most of the workmen here were badly poisoned every time they handled the primulas, on the other hand some of them could handle it with perfect immunity. But the strangest thing about it to us is here: At first it used to poison us every time we touched it; in a year or two the irritation became less marked, and now we handle the plants—repotting them, cleaning them, or picking the flowers from them without suffering any irritation.

THE LILY OF THE VALLEY that the florists force in winter is imported European roots. They are the best for them, being the most reliable, for they have been grown and selected specially for forcing, and every pip produces a flower spike. But amateurs can grow their own roots and get fine flowers. We have a large lot of this little plant in the garden and every fall we topdress it with short manure, letting it stay there over summer. This gives us big fine pips, and beautiful spikes. Before the winter sets in we dig out about a hundred to a hundred and fifty square sods of it for forcing. The sods are well shaken to remove the loose earth from them, and then they are packed pretty close into little flats or boxes, say 12 or 16 inches square by 4 inches deep, keeping the pips all looking up, but none above the box. We pack as many into each box as we can get without hurting them, using light, fine dryish earth in the operation. When the boxing is finished we set them out of doors in an open frame by the side of a board fence and spread some leaves or chaffy manure over them, but not nearly enough to exclude frost from them. They remain there during winter except that so many are brought indoors twice a week for forcing. We start them in the hottest place in the greenhouse—a place under the bench near the boiler, and when the flower spikes appear above ground move the boxes up on to the shelf and in a week or ten days when the bells begin to form move them to a cooler place. We want good foliage as well as good flowers. In forcing lily of the valley, trying to establish the plants before forcing them is labor lost, and common sand is just as good as rich earth for boxing them in.

THE GRAPE CULTURIST, a treatise on the cultivation of the native or hardy grape by Andrew S. Fuller, comes to us from the Orange Judd Co. It is a new revised and enlarged edition of the work which has been a standard for thirty years. We are well acquainted with Mr. Fuller; we know the man and the experience he has had, and we hail with delight this comprehensive, plain, practical, easily understood and up-to-date book on how to grow grapes out of doors. Mr. Fuller has been actively engaged in practical horticulture for fifty years, and is a life-long investigator as well as practitioner, he knows the theory and the fact of the matter, and has got the hard common sense peculiar to men of long experience. More than that he has got the happy faculty of communicating to others the information he himself possesses in a terse, convincing way. He commences by giving us a history of the grape vine and its botanical characteristics. He tells us how to propagate it from buds, grafts, cuttings and seeds; and how to hybridize it. Every detail of cultivation in the garden and vineyard is given, for instance soil, situation, selection, planting, pruning, training, fruiting, etc.; also the insect and fungous diseases of the vine and how to deal with them. And 38 pages are devoted to a description of varieties. A list of the best standard varieties is given in one chapter; a list of new varieties in another; and one of old and obsolete kinds in a third. Altogether we commend this book as being indispensable to any one interested in grape growing out of doors; it is a sound book and one can follow its teachings with pleasure and profit. It is 12mo., freely illustrated, contains some 280 pages, and costs $1.50. You can get it from the publisher of this journal.

PLAN FOR A TERRACE.—A correspondent of GARDENING has two terraces, each 28 feet long by 20 feet wide, sloping southward at an angle of one to four, and separated from each other by steps. He intends next spring to plant these terraces partly with tall growing foliage or decorative plants, but mainly with low growing shrubs and plants, and he desires us to say that he will give a prize of twenty dollars for the best design; the competition being open to all. The plans of both terraces are to be alike in design, but the planting may or may not be alike. The plans should indicate how the plants and shrubs are to be arranged, regard being had to uniformity of size in the case of those bedded together. The spaces between the beds are supposed to be sodded. All plants and shrubs, except perhaps a few decorative plants, must be perfectly hardy in a climate where the temperature sometimes reaches 17° below zero; at all events, hardy with reasonable protection, say a good thick covering of leaves. In selecting the shrubs etc., special regard should be had to the quantity, quantity and duration of bloom. Plans drawn upon a scale of four feet to one inch may be sent to the editor of GARDENING any time before February 1. Mr. J. Wilkinson Elliott of Pittsburg, Pa., has kindly consented to advise as to the awarding of the prize. This will be an interesting pastime for some of our subscribers during the winter evenings, and it is not improbable that some of the designs may be worthy of publication in GARDENING.

The Vegetable Garden.

TOMATOES FAILING IN WINTER.

E. H., Concordville, Pa, asks: 1. "Will you please let me know where can I get a book on tomato culture? 2. The tomato plants we have in our greenhouse this winter are not doing very well, the leaves wilt and black spots come on them, and then in a week's time the leaf is dead and so it will go all over the plant. 3. The stalk appears to be very healthy but a great many blossoms dry up and there are no tomatoes formed."

1. There is no book on the subject that we have seen.

2. Your plants are troubled with the tomato leaf disease, which is very destructive to the crop in the winter months in the greenhouse. By rigid cleanliness, a moderate temperature and even, dry atmosphere, and picking off every diseased leaf as it appears you may keep the disease in check enough to have the plants bear and ripen some fruit; but really badly infested plants should be dumped out as hopeless. Begin with a thoroughly clean greenhouse, fresh soil, firmly packed either in pots, boxes, or on benches; and with stocky, perfectly clean young plants, and once a fortnight spray them, wetting the foliage on the under as well as the upper side, with Bordeaux mixture. Do this before there is a vestige of disease in sight; after the disease sets in spraying may not be a complete remedy or preventive.

3. At this time of year you should hand fertilize your tomato blossoms.

THE VEGETABLE GARDEN.

GLOBE ARTICHOKES.—We have put a shovelful of coal ashes on top of each stool, a good armful of tree leaves on top of that, and a little sedge over the leaves to keep them in place.

The asparagus tops have been cut, cleared away and burned, and the beds manured and forked.

Brussels sprouts have been lifted, stripped of their rough leaves, and heeled in, straight up and close together in a pit where we can get at them to pick them in winter whenever we want to. Don't have them in the cellar, they smell too bad.

Mature cabbage and Savoys are buried heads down in a close double row. Smaller and younger headed Savoys have been stripped of their rough leaves, and heeled in heads up and as close together as possible in a five feet wide bed, which we cover with sashes or boards with some sedge over it to keep out very hard frost.

Curled kale is put by in the same way.

Cauliflower showing small heads was

prepared as stated for Savoys except that we have to keep it in a pit or well-wrapped frame, and exclude hard frost from it.

Celery is laid past in the trenches, with a month's supply in a pit where we can get at it at anytime. The ridges are packed at top, smoothed and graded on the sides to shed water, boards tilted to the side are placed over the rows of plants, and over all some sedge and leaves are laid to exclude frost. Look out for field mice though. They love such winter quarters, and cut the plants, tunnelling among them and destroying them.

Chives have died down to the ground. Some clumps of them lifted now and brought into warmth will soon start into fresh growth and give you a nice cutting for salads.

Curled cress and white mustard are much esteemed fresh salading. Sow the seed thickly in shallow boxes in light soil smoothed on the surface, and bring it into a warm room or greenhouse. In a few days the seedlings appear, and when they are seven to ten days old, cut them clean off at the root, they are then fit for use.

Greenhouse cucumbers are all we have now. A night temperature of 60° to 65°, plenty to eat and drink, a syringing in the forenoon, rigid cleanliness against red spider and mealy bugs, and hand fertilization of the flowers, are what is needed.

Dandelions have been cut and raked off smooth, and a dressing of light manure spread over the beds to save the crowns from the effects of sudden changes in winter, and we leave them in this way till the first of March, when we cover the beds with frames and sashes to coax the plants to grow that we may cut them for early greens.

Endive should be tied up, and kept dry overhead in cold frames much as we would lettuces.

Of horse radish we have dug up enough to last us till spring, storing it in the pit, and the strong roots which we shall use for new sets in spring are buried or pitted out of doors. We plant in early spring. We never gained anything by planting it in fall.

Leeks have been lifted and stored in a corner of a cold frame where we can reach them at anytime.

Lettuces are in the cold frames in all stages from 2-inch plants to hearting ones. The little ones are pretty hardy, but we cover up the big ones enough to save them from frost.

We get lamb long before we have outdoor green mint in spring, for this reason we cut and dried a few bunches of it, and also lifted a few sods of its roots and planted them in shallow boxes to bring into warm quarters a little while before we want the green mint.

Mushrooms are a winter crop. Continue to get together fresh horse manure for new beds. But don't use manure from stables where the horses are fed with carrots. See page 60, November 1 last.

New Zealand spinach was fine with us up into November, but it is tougher than our common spinach and less palatable. It is all past now. Now, while it will stand heat and drouth, a slight frost kills it. Next year from self sown seed it will come up thickly all around where it grew this year.

Onions are stored in a cool room. We place a layer of dry marsh hay on the floor, then a layer, six or eight inches deep, of onions on top of that, and finish off with more hay over all. A sharp frost won't hurt them providing you don't handle them much while they are frozen.

The outside parsley was so good that we covered up a row to keep for use till the holidays. In a cold frame there is a nice stand of midsummer sown plants for use over winter and till the end of next June. Most folks have a old soap or cracker box planted full of parsley and stuck in front of the window inside in the cellar.

Of parsnips we will leave a large bed out of doors and undisturbed over winter. If the potatoes in the cellar are sprouting turn them out of the barrels and rub the sprouts off of them. If you have any in outdoor pits, cover them deep enough to exclude frost, but ventilate them too.

Radishes after this time of year had better be raised in greenhouses, they won't grow in cold frames, and hotbeds are too close and unsatisfactory in December and January.

Rhubarb, we put a little earth on each crown to shed water and mark the spot. We will soon begin lifting some roots for forcing. Our market gardeners always lift them and leave them out in the frost for a while before they bring them indoors to force.

Spinach that was sown early in September is heavy stock now and a good deal blistered with the leaf maggot; that which was sown the middle of the month is giving us the best greens. As soon as there is a good crust of frost on the ground we will spread some sedge or salt hay over it to preserve it from the changes of winter, we wait for the frost on account of the field mice. For a supply in severe weather we have a string of cold frames filled with spinach. Besides, if one were to pull a lot of spinach now and barrel it, leaving the barrels out in the cold or in a cold shed the spinach will keep in them for some weeks.

Squash are very easy to keep till December, now we must keep them warm, say at 60° to have them late in winter.

Carrots, beets, parsnips, salsify and scorzonera are all up, and in their respective bins in the root house. We must keep a careful watch over them to keep them from sprouting, and we must keep them cool. Look out for damping or rotting among them.

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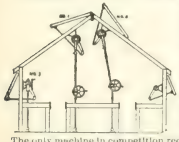

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GARDENING

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AN AMATEUR'S SUCCESS: HOW MR. GEO. W. BRAMHALL, SOUTH ORANGE, N. J., GROWS CHRYSANTHEMUMS.

Chrysanthemums.

HOW AN AMATEUR GROWS CHRYSANTHEMUMS.

Only want of space should limit the number of varieties in an amateur's collection; care should be taken however, to have each one distinct from the other. The trifling increase of care needed in growing one hundred plants of as many varieties is fully repaid in the constant interest, and delight of comparison at all stages of their growth.

I advise the addition each year of the certificated varieties of the preceding season. They will no more than replace the former favorites that degeneracy and competition have relegated to the "rot pile." Do not confine the choice of the new varieties to the prize winners; robustness and decision of color have too long been the aggressive prerequisites to prize winning. Within reason and good taste such qualities are essential, but their too general and exclusive prevalence at our flower shows, through which the public are educated, have left it for the amateur alone to know and to enjoy that bevy of frailer beauties, whose chaste and dainty tints and contours please, rather than dazzle with their wealth, but are neither big nor "yallar" enough to be exalted to the showbench, and possibly have never taken the second breath in the commercial life of their race. I do not wish to banish the *monstrosities*, for which I confess a barbarous fondness, but I do plead for the little and retiring beauties to the amateur who can save them before they perish from the catalogues of the few flower-loving commercial growers, who still have the temerity to print their names. But few of this sort appear in the photograph (taken November 1894), as in the language of the photographer "they don't take good pictures," but some of them are mentioned in the appended list of varieties recommended to be grown by the amateur.

There is no secret, or trick, in growing chrysanthemums. At the very start we recognize that the plant is an omnivorous feeder, and indulge its appetite to the borders of indigestion. From the time we take our cuttings (about the last of March), through to their flowering, we do not permit their growth to receive any check. Do not wait till all plants require shifting. Carefully note when each plant requires it, and then shift it. From the cutting bench, we place them into 2½-inch pots, and when their roots demand it shift into 4-inch pots, and it is at this stage, and just before another shift into larger pots, that we cut out the leader about six inches from the rim of the pot, in order that the plant may break into the required shape. We flower these bush plants in 8, 9 and a few in 10-inch pots.

We believe in rather light, but rich soil, and our compost is made up from rotted sod, very old manure, and a quite liberal proportion of bone meal. We use meal, (not flour), that palpably granular sized bone, which is larger than the grain in the flour. It is more gradual, and more lasting in its action. Under glass and out of doors, we water as freely as the plants will take it, having however, good drainage in the bottom of the pot. We use no liquid manure till the plants have set flowering buds, and then use liquid sheep manure, being careful not to sour the soil by its excessive use. This latter stimulant, or food, is applied two or three times a week, until the bud shows color, when we desist, and during the blooming period, use clear water only.

We grow all of our plants *all the time* in the pots. As early in May as the weather will permit, we place our potted plants out doors in the cold frames, having previously covered the soil in the frame with two inches of cinders to keep the worms from getting in the pots. Not having room enough in our frames to accommodate all, we plunge some, pots and all, wherever we can find room in the borders of our vegetable garden. By this means, we give nearly all the plants a summer outing. During this time, they require to be staked to protect them against the violent summer storms. In August we select the best grown and take them into the coolest of our greenhouses, where they are treated as above explained, until they are through flowering.

For want of room we grow neither standards nor large specimen bush plants. Our preference is for those bearing from three to ten blooms each, and we flower only terminal buds. Our cuttings for single stem blooms are the leaders cut in shaping the plants when they were in the 4-inch pots. We flower most of these in 5-inch pots.

I append a list of the varieties we grow and chiefly of which the group in the photograph was constituted.

WHITE:—Mrs. DeWitt Smith, early and long lasting. Ivory, The Queen, Niveus and Minnie Wanamaker are the best whites. Mrs. W. K. Vanderbilt is a late bloomer and is of good substance and a strong grower. Mrs. W. S. Kimball deserves a place, and Etoile de Lyon, suffused with lilac, is one of the finest of chrysanthemums. Of the hairy whites, I prefer the Annie Manda. It being of poor root action, and not of vigorous growth, requires warmer and less moist treatment than do others of this type. However, the flower at its best is worth all the extra care given the plant. L'Enfant des Deux Mondes (White Bœhmer) is good, but it is slightly inclined to show its centre when past its best.

YELLOW:—H. L. Sunderbruch, Golden Wedding and Eugene Dailledouze are veritable golden monarchs, and each distinctively grand. W. H. Lincoln continues to be the finest of its color. Hicks Arnold I regard as the best of the deep yellows. Georgienne Bramhall is very early and the longest lasting flower in my collection. It is a distinctive primrose yellow and of excellent habit. Mrs. Geo. M. Pullman is a fine reflexed yellow. Major Bonnaffon deserves promotion. Libbie Allen, Mrs. L. C. Madeira and Mrs. J. G. Whilldin are the best of their types. The yellow Viviand-Morel is still an unrealized dream.

PINK:—Mrs. E. G. Hill was the earliest of my collection to bloom. It is the most beautiful light pink in existence. However, it was a poor keeper with me, both on and off the bush. Viviand-Morel is still the queen of pinks and in all essentials is the finest chrysanthemum to-day. Harry Balsley, Maud Dean, Pres. W. R. Smith and Eda Prass are light tinted pinks, that should be in every collection. Dorothy Toler though a little stiff and dahlia-like is from its moderate size and daintiness of tint one of the gems of my collection. Sue T. Price is also dainty and pleasing. La France and Thos. H. Brown are early and of good color and shape. Mrs. Bayard Cutting is of decided color and grand in size. Mrs. Trelease I regard as the best hairy pink. Mrs. Jas. B. Crane and Mrs. Geo. West deserves places in the amateur's collection. Christabel is rather a fancy variety; its center being a pale canary yellow while the outer petals are of a bright pink, shading to a shell pink giving the bloom a pleasing effect. The flower is large, and the plant very satisfactory in its growth. Mrs. Jas. Eadie, though not large, I found to be the most perfect self pink in my collection. Lilian Bird and Iora are pleasing members of my family of pink chrysanthemums.

I have reduced my collection of reds and fancies to consist of Geo. W. Childs, Mrs. A. J. Drexel, Mrs. A. G. Ramsay, Renee and Pitcher and Manda. It seems a pity that this latter decided break in chrysanthemums should have been named as an advertising medium. GEO. W. BRAMHALL.

South Grange, N. J., Dec. 10, 1894.

Greenhouse and Window.

CYCLAMENS.

These are now in bloom and should continue in good condition for three months to come. Years ago we treated them as perennials, raising them from seeds, then keeping over the old bulbs for some years, nowadays we treat them as annuals, or at most, as biennials. Sow the seed at once in a pot or pan filled two-thirds with drainage and one-third with light loamy soil. Cover the seeds ⅛-inch deep, set the pot up to the light but shade from sunshine, and keep in a temperature of 60° at night. Prick off the seedlings when they are about three weeks old, then when they are big enough pot them singly into 3-inch pots, then into 4-inch ones, and finally, say next September into 5-inch ones. Keep them in active growth all spring and summer, and don't let them dry up and rest as we used to do years ago. A soil consisting of three parts in bulk of sod loam and one-third of old rotted cow manure suits them very well. In fine weather, when they are not in bloom, syringe them every day, in the morning in winter and the afternoon in summer. Greenfly is very troublesome to them but by strewing fresh tobacco stems under and about the plants this insect pest is easily removed. Our illustration shows a ten months' old plant in a 5-inch pot.

THE GREENHOUSE.

The flood of chrysanthemums is now past, and we are now in the dullest period of the whole year for flowers. Before the middle of October we get an abundance from out of doors, then come chrysanthemums, lasting till December, just now there is a sprinkling of many things but no great abundance of any except from special effort, after the middle of January, however, variety, quantity and quality will begin to improve. Where special attention is given to forcing roses, carnations and violets, of course these can now be had in tolerable abundance.

A LITTLE STYLE or get-up in the greenhouse as well as in our dwelling houses adds much to their attractiveness. Have everything clean and tidy, the pots clean, the benches free from fallen leaves or flowers, and the pathways swept out clean or washed. Arrange the plants with taste and so as to show them off to the best advantage and let the flowers be seen. Don't deaden the appearance of all by having gone to rest, or "past" plants here and there in prominent view, put them to the back, or aside by themselves, or into another compartment. Have a fringe of something pretty all around the pathways, either on or under the benches, maybe both. On the bench we may have the fringe grass (*Isolepis gracilis*), the variegated panicum, plain green or multicolored Wandering Jew (*Tradescantia*), the fleshy-leaved othonna, or mosses or ferns. Underneath, alongside of the pathway ferns, mosses, marantas, tradescantias, and the like may be grown.

BEGONIAS.—*Insignis, fuchsioides, Ingrami*, and others of that type are in good bloom, so too are *odorata* and *coccinea* but they will be better in a week or two. Paul Bruant, *manicata*, and some others will come later, the Rex and other fine foliaged ones are in beauty all the time. They like condensed light, limited pot room, a moderate amount of water at the root, but little or none overhead, and genial warmth, say 55° to 60° at night.

THE ZANZIBAR BALSAM (*Impatiens Sultani*) makes a capital companion plant for begonias, luxuriating under similar conditions, it is in bloom continuously, and is one of the best window plants known.

STEVIA is now plentiful. We grow the dwarf variety, have it in pots in a cold pit but perfectly secure from frost, and bring some plants into the greenhouse twice a week, and in this way keep up a succession till the end of January. In cutting we cut the plant clean off and dump out the root, that is all except two or three plants which are saved for cutting.

NASTURTIUMS of the Lobbianum section raised from cuttings in August and grown on in pots and now, some in pots and some planted in a bed, in the greenhouse, and the vines run up on strings are bearing lots of scarlet flowers.

CHINESE PRIMROSES should be in fine form now, and keep in good bloom till February or longer. What nice Christmas presents they make! Keep them cool and near the light but thinly shaded from sunshine; keep them moderately moist, being very careful not to overwater them, and never wet their leaves.

OBCONICA PRIMROSES are gems in their

CYCLAMEN.

way, they are so easily grown and bloom so freely and continuously, and what cannot be said of the other Chinese primroses, their flowers are capital for cutting. On account of their "stinging" leaves, however, there is a prejudice against them.

PRIMULA FORBESI is another little beauty from China, it is of a dwarf rosette form with tall airy flower stems and small pale pink-purple flowers with a yellow eye. Their profusion make it attractive.

CALLAS, Give them weak manure water once or twice a week, and let them have plenty room. While they don't like strong sunshine, they dislike the shade of vines. The Little Gem calla makes a pretty little pot plant, but for cut flowers, alongside of the old variety, it is nowhere.

CANNAS IN POTS are fine in winter. The dwarf varieties as Star of '91 and Queen Charlotte, are preferred. They like light moisture, and warmth, but not a close atmosphere.

POINSETTIAS are in their heyday. They like warmth, good light, and a free use of the hose to keep them clean. When cut remove some of the rougher leaves and set the flowers in a tub or tank of water for a while, then cut the ends again. After being cut over the plants may be kept dry and rested till May.

HELIOTROPE does best when up near the glass, it never grows or blooms well in the shade. A box or shelf raised well up to the glass near the back wall is the place it usually gets. Keep it watered all winter, giving liquid manure now and again.

BOUVARDIAS are now in their heyday and very beautiful both in pots and planted out on benches. As soon as they are past keep them rather dry, then store them aside to make room for other things, but don't let frost reach them.

YELLOW LINUMS are the gayest plants we have of their color. Any common greenhouse seems to suit them. They make pretty plants but like flax generally their blossoms are too ephemeral to be of any use when cut. Look after them for red spider.

LIBONIAS AND SERICOGRAPHIS are coming into bloom quite prettily and help to brighten the greenhouse or window. As cut flowers they are of no use, they wilt so quickly. As plants they will stand more abuse than anything else we know of except cacti, and look well.

RUELLEA MACRANTHA is very pretty now with large rose-purple flowers. A night temperature of 50° to 55° suits it nicely.

• RUSSELLIA JUNCEA is quite a pretty old fashioned plant, almost perpetually in bloom. In a moist, warmish house, in a suspended pot or basket it looks well. It is useful for window or veranda boxes or baskets in summer.

PLUMBAGOS are coming into good favor. At this time the red flowered one (*rosea* and its variety *coccinea*) are in elegant perfection in warm greenhouses, and the blue one (*Capensis*) and its white variety

in cooler houses. The blue and white ones named last are almost perpetual blooming indoors, and too when outside in summer, thriving in warm dry places.

THE DIFFERENT OXALISES, especially the little red flowered one, and the single and double flowered yellow ones (*cernua*) and the variegated edged one (*variabilis*) are all very pretty in the daytime for baskets, brackets, or sunny places in the greenhouse or window. Rest them in summer and grow them in winter.

TORENIA ASIATICA as a basket plant in a warm greenhouse, if kept clean from mealy bugs, is always full of pretty blue flowers; and as it roots readily from cuttings fresh thrifty specimens can always be had.

TOXICOPHLÆA SPECTABILIS is an evergreen shrub from South Africa. We grow it as a pot plant, and in December and January every branchlet is laden with dense terminal and axillary corymbs of white, very fragrant flowers, somewhat reminding one of very close heads of white lilac. It bears berries with us; they are black, ovate, the size of a cherry, fleshy with two large seeds in each. They take a year to mature, we frequently have ripe fruit and the next year's blossoms on the plant at the same time. As the whole plant has the reputation of being very poisonous, we have never considered it safe to taste the fruit. The plants are long-lived but not fast growing. You should get a plant of this if you want sweet fragrance in your greenhouse in winter.

APONOGETON DISTACHYON is a little aquatic plant from the Cape of Good Hope and which grows very easily in a tub, pail or basin half filled with loam and full with water, and placed where it has good light. It blooms all winter, its flowers being white, of good size and quite fragrant. As cut flowers they are not of much account, they wilt so quick unless the stems are so short that the blossoms almost touch the water, in that condition they last a long time.

IPOMŒA HORSFALLIÆ is a vigorous thick-leaved vine from the West Indies. It grows well out of doors in summer but doesn't get into bloom before October or November—too late for out of doors in the north; but grown in a warm greenhouse either in a pot or tub or planted in a bed it blossoms splendidly between October and New Years. Its flowers are deep glossy rose-purple. There is also a white flowered form of it as easily grown and flowered as the purple one. Hose it frequently and vigorously to keep it clean, but don't over-soak it at the root in winter. In the case of *I. Leari* and others that bloom well out of doors in summer there is no need of loading up our greenhouses with them in winter, just keep over a few young plants for spring planting.

Where there is plenty of room allamandas, Balfour's clerodendron, the laurel-leaved thunbergia, *Bignonia venusta* and some other vines should now be in good bloom. All love a little warmth, say 50° or over. The allamanda and clerodendron if not needed in winter and it is desirable to cut them in to make room for other plants just now, giving them the possession in summer, may be cut back and kept dry at the root, and at the cool end of the warm greenhouse. Smilax should be good now. A little later when it is in bloom it is very pretty and exceedingly sweet. The fern-like asparagus (*plumosus*) is liked better than smilax as a vine, and when cut it lasts longer. The same treatment suits both.

GNATS GREENFLY—ANEMONES—RANUNCULUS.

M. L., Pleasant Plains, Ill., writes: "1. My conservatory is troubled with gnats. Then after a time I notice the little green aphis. Do the gnats produce the aphis? How can I get rid of each?

2. I have anemone tubers, also ranunculus. When and how shall I plant them? Can they be put in pots and rooted in the cellar and forced as hyacinths and tulips?"

1. Without seeing some of the "gnats" we can not tell what they are, but it is unlikely that they have any connection with the green aphis. Fresh buhach powder blown into the atmosphere will probably destroy the "gnats." Fumigating with tobacco smoke, or a liberal use of fresh tobacco stems scattered under or on the benches, or a strong tobacco vapor raised by having fresh stems on the hot water pipes and moistening them with water should destroy the greenfly. Dipping the heads of the plants into tobacco water or syringing them with the same also helps to kill the aphides.

2. Pot them at once, using 5 or 6-inch pots, and put three or four tubers into each pot, covering them an inch deep. Then treat them exactly as you would hyacinths in pots, except that the pots should not be covered over so deep with earth. Or, if you want them for out of doors plant them in cutting flats, 3 inches apart, and in spring when they begin to grow lift them out and plant them in the borders, or plant them in a cold frame. They are fairly satisfactory as pot plants, both thrive admirably in frames, and while the anemones do nicely in warm sheltered spots outdoors the ranunculuses do better in frames.

VIOLETS—CANNAS—BIGNONIA—AZALEAS—PLUMBAGO.

1. What is the proper way to treat a spent hotbed when you want to plant violets? Mine has four inches of top soil above the rotted horse manure. I did nothing with it and the plants seem to be doing all right.

2. I cannot get my canna seed to germinate. They were soaked a day in warm water, one end notched with a file then planted in an east window of a steam heated room. Four weeks and no sign of a green leaf yet. In the cold frame they have been in two months with the same result. I am now soaking some for two weeks.

3. I have some seed of a choice bignonia. How would you start it?

4. Please mention some good hardy azaleas and give us your opinion of *Azalea mollis*.

5. Will *Plumbago Capensis* live in a cellar for the winter? C. M. C.

Washington, D. C.

1. If the violets are doing all right, let well enough alone. If the manure in the old hotbed is thoroughly moist, spread evenly and packed firmly, it should make a good enough bottom for a violet bed.

2. There is danger of them rotting in the window at this time of year. We should prefer to wait till January or February, then pour boiling water over the seed, letting it get cool, then leaving the seed in soak over night, if the skin should then be hard and the seeds unswollen notch them with the file, and plant at once in ordinarily moist earth and keep in a warm temperature. They will probably be dormant in the cold frame till April or May.

3. Is the bignonia a hardy or a tender species? If hardy, fill a flat—a shallow box such as florists use for starting seeds or cuttings in—with light sandy soil to within ¾-inch of brim, then sow the seed, and cover with ¼-inch deep of the same soil; over this place a layer of common excelsior packing three inches deep, and set the box in a shaded cold frame. If a tender species prepare the flat and sow the seed in the same way, but take it indoors.

4. Alba lutea grandiflora, white and yellow; Aurantiaca, orange scarlet; Bouquet de Flore, pink and white; Cruenta, scarlet; Dr. Asa Gray, orange scarlet; Grandeur Triumphante, dark rose; Narcissiflora, yellow; Punicea, crimson-scarlet; Richardii, pink and yellow; Rosea rotundiflora, rose and orange, and W. C. Bryant, deep pink; all strong, good, hardy sorts. And be sure you get our native *Vaseyi*, lovely pale rose, early, good flame-colored varieties of *A. calendulacea* and *A. arbor* which is white flowered and late. If your ground is suitable for it *Azalea mollis* should do well at Washington, and when it does well its large flowers are very showy. The greenhouse azaleas are also hardy with you. Take a step into the U. S. Botanical Garden, and in a border just inside near the gate opposite the Capitol grounds you will probably see a bed of them. And don't forget *Azalea amœna*, it is a little gem and should make a fine border to the bed of larger sorts.

5. Yes, but keep the earth about the roots slightly moist. Cut back the plants a good deal before storing them away, if their roots are good they should throw up strong underground shoots in spring.

PLANT TO GROW NEAR THE RADIATOR.

F. N. B., Indiana, asks: "Is there any plant that will do well on a narrow shelf just above the radiator in conservatory? This shelf is a famous place to start seeds, but the current of hot air is strong enough to keep the leaves moving, and ivy geraniums and other old friends that have been tried there don't seem to enjoy the location."

Had I such a place to decorate with plants I would certainly use an interesting collection of crassula plants. *Echeveria metallica* and its variety *glauca*, *E. Schmidtii*, *E. carinata*, *Crassula tridentata* and many other crassulas, sedums (some of which are very decorative), *Othonna crassifolia*, *Euphorbia Antiquorum*, *E. Canariensis* and others of such oddly decorative characters can always be made into a group of interesting plants which would not object to a good share of dry heat if kept watered accordingly. JAMES GURNEY.

Missouri Botanical Garden, St. Louis.

GAS AFFECTING HOUSE PLANTS.

L. B., Chicago, asks: "Can I do anything to counteract the effect of illuminating gas on house plants? It does not perceptibly escape, yet since its presence the leaves are falling off begonias, fuchsias, etc., and all my plants are suffering."

Aside from purifying the atmosphere, not that we know of. But you could grow less sensitive plants, for instance palms, ficus, aspidistra, aloes, and the like, brightening them with oxalis, crassula, and bulbous plants, and leave fuchsias till spring. Begonias, especially the thick large-leaved sorts, make fine window plants and we know where they are very thrifty in windows of houses where gas is burned. But a hot, dry atmosphere

STAG'S HORN FERN.

coupled with gas is very detrimental to plants in the house.

STAGS' HORN FERNS.

(*Platycerium*).

The name Platycerium is derived from *platys*, broad and *keras*, a horn, on account of the fertile fronds being divided into segments like a stag's horns. The spore masses form in large patches near the end on the under surface of the fertile fronds. The sterile fronds as regards shape size and texture, are distinct from the fertile ones.

We have about nine species, some are found in temperate Australia, others in the Philippine and Malayan Islands and one (*Æthiopicum*) comes from Africa.

Their culture is very simple, they require only an ordinary greenhouse temperature. *P. alcicorne* and its varieties *majus* and *Hillii* will thrive well in baskets, in this manner it is graceful and pleasing. All the kinds can be grown attached to blocks of wood and hung on to a wall where they will get only a partial sunshine or even on to a north facing wall if it gets plenty of water. The finest specimens I have ever seen were grown in moss with a little crushed bone mixed in it. Use wire to fasten the plants firmly to the blocks.

These ferns are usually propagated by taking off the young plants produced from adventitious buds on their roots. As *P. grande*, does not produce any, we get it from spores, and even then it is slow. But a friend of mine recently raised about 50 plants of it from spores, and has now a pretty nice lot. Other varieties can also be propagated from spores, when they are wanted in quantities.

P. Æthiopicum from west Africa, has fronds two to three feet long and half as broad, the under surface of the fertile fronds being covered with a thin cottony down.

P. Æ. Angolense, from Angola, differs from the type in having a broad wedge-shaped fertile frond, oftentimes a foot across at the top, without either forks or horns, and with the spore mass in a patch almost as broad as the frond.

P. alcicorne is found growing in Australia, Java, the East Indies, Madagascar, and Peru, and is the best known and easiest to grow of all. Many large specimens of it may be found in private conservatories.

P. a. majus from Australia is more robust and has much larger foliage than the preceding. It has broadly lobed fertile fronds on flat stiff stalks seldom divided more than once, the limb being elegantly drooping though the frond stands erect.

P. biforme, is a native of Burmah, Java, Borneo and the Philippines. Its fertile fronds have a graceful drooping habit and grow quite long and eight to ten inches broad.

P. grande is a noble species from Singapore and north Australia. The barren fronds are large, stalkless, and have their upper portion divided into many broad, blunt, spongy, pale green, tomentous segments. The fertile fronds, four to six feet long and pendulous have a broadly wedge-shaped disk covered with a large triangular patch of fructification and bears at each corner a repeatedly forked division extending a distance beyond it, but always remaining barren.

P. Hillii, from Queensland, somewhat resembles *P. alcicorne majus*, but has repeated furcation of the division of the frond, The habit too is more rigid, and its fertile fronds have no inclination to droop.

P. Wallichii, a native of the Malayan Peninsula, resembles *P. grande*, its barren fronds being deeply lobed. The fertile fronds are in pairs and drooping, the wedge shaped disk, between the divisions, has a rounded upper edge, and forms a projection, upon which are two patches of spores.

P. Willinckii from Java is a very distinct pale glaucous species. The fertile fronds are in twos and threes, pendulous, three feet long and narrow, the fronds are entire on one margin and repeatedly lobed on the other. F. L. ATKINS.

New Jersey.

HYDRANGEA—PERLE ROSE—BEGONIAS.

1. Please tell me how to treat tender hydrangeas. They are of strong habit, and have fine foliage, and flowers either of shell pink or waxen color. What do you think is its name?

2. I have a Perle des Jardins rose bush that I purchased last spring, it has had only one rose. What treatment should I give it to make it bloom? The foliage looks healthy, but doesn't grow much, and there are no insects or anything else I can see to deter its growth and blooming.

3. What treatment should I give *Begonia metallica*? Will it bear pruning of leaves or branches? Instruct me as to sunlight, air and water, also soil for it.

4. I also have a spotted leaved begonia growing in a very ill shape and fear to trim it back lest it might prove fatal. A new shoot from the roots is one and one-half inches high. What should I do with it? Z. B. E.

Tower Hill, Ill.

1. The hydrangea is probably Otaksa. It should now be at rest in a cool cellar. A little frost won't hurt it, but hard frost will injure the buds. Keep the roots slightly moist. If it starts to grow in winter the place is too close and warm for it, move it to cooler, but never frosty quarters. Discourage growth all you can. In spring when the plants begin to grow bring them up to the piazza, where it is warm and sheltered, give them a little more water, and plenty room, Whenever it is safe to place them out in the garden do so, keeping them in a somewhat shady rather than open exposed place, and give them lots of water and room. Forcing hydrangeas in the greenhouse is easy enough, but in the window more difficult, they take up too much room, besides they are very slow.

2. Let it rest in a cool airy cellar, but keep it moderately moist all the time. In a month or two it will show signs of a fresh spurt of growth, then prune it in a little, bring it up to the light of the window, keeping it rather cool at first, and dew it overhead every fine day. If the bush is healthy every fresh shoot should bear a blossom. In growing tea roses, first work for good roots, this brings growth, and growth blossoms. Although they are evergreen and evergrowing, a rest by cool and dryish treatment for a couple of months before pruning and starting them a fresh is of lasting benefit to them.

3. If it gets too big, shorten it back to a young side shoot or leafy joint. It likes a warm room and a place close to the window, but dislikes hot sunshine. A north or east facing window is a good place for it, or a south or west one if a thin muslin screen is drawn between it and the glass when the sun is shining brightly. Keep it moderately moist, but never very wet. Don't wet it overhead, except now and again, say once a fortnight, when you may take it outside some warm morning or to the kitchen sink if a cold day, and give it a shower bath overhead to clean the dust off of its leaves. Do this only in bright dry weather. It enjoys a little fresh air every fine morning, but no draught and no chill, for it is a warmth-loving plant. A porous loam with leaf soil mixed in it, or a little very rotten manure suits it well; and have the pots well drained.

4. Send us flowers as well as a perfect typical leaf. To name it without these would simply be guessing at it. Cut the old stem back two-thirds, then when the

young sprout gets to be a foot or eighteen inches high nip the point out of it to make it branch. If the manure is old and well rotted it matters little which is used, but if the cow manure had got past its pasty nature we should give it the preference.

Orchids.

CARE OF ORCHIDS IN WINTER.

Care must now be taken to place such plants as *Oncidium tigrinum, O. varicosum, Odontoglossum citrosmum* and *O. grande* in a suitable place for rest; a cool shady house whose temperature is not apt to fall below 40° nor rise above 50°, with sufficient moisture in the atmosphere to prevent the bulbs from shrivelling, will be about right. If kept from sun heat or fire heat as much as possible they will hardly require any watering, and see to it that no drip falls on to them from a leaky roof.

Cattleya Trianæ will now commence to push buds through its sheaths, and to save them from slugs it is time and money well spent to suspend the plants from the roof as fast as the flower buds push through, and I think this plan too helps to hasten the buds into bloom, and if watered, as we do with the hose on fine mornings, they will dry up much faster, and a little water on the flowers will not hurt them provided it is free from sediment.

Cœlogyne is now showing its flower scapes, and if placed in warmer quarters with the lælias they will be in bloom at or soon after the holidays.

I find there is a great difference in quality of many strong growing orchids if during their finishing period they are treated to a little weak manure water; a little sheep manure, hen manure, wood ashes, or soot, given them about twice a week does wonders in finishing up their growth and sending up strong flower shoots. *Cypripedium insigne* will repay any trouble in that way by sending up much finer flowers both in size and color. *Cymbidium Lowi* and *Dendrobium formosum* will also respond to such treatment in very liberal growths and consequently a large crop of fine flowers. I have also tried carefully the same treatment on *Odontoglossum crispum* and *O. Pescatorei* with good effect.

Calanthes should now be placed in as strong a light as possible; do not allow them to get very dry; water them frequently with weak manure water. Carefully protect the young flower spikes from slugs and cockroaches. The success of orchid culture depends very much on such little attentions.

Utica, N. Y. WM. MATHEWS.

THE CYPRIPEDIUM DOESN'T BLOOM.

M. J. G., Mt. Kisco, N. Y., writes: "Why does not my cypripedium bloom? It is kept in a house having a night temperature of 50°, but in a partly shaded place."

Your question is rather indefinite, you do not mention anything about age, size of plant, or what variety. If your plant is of good size say large enough for a 3½ or 4-inch pot it should flower. Cypripediums as a rule like plenty of light (shading only in the summer season either by planting the glass roof or by outside blinds), and they should not be overpotted, and almost the year round they should have a warm moist atmosphere. For potting material we use nothing but clean sphagnum moss with plenty of potsherds in the bottom of the pot for drainage. Although they like plenty of moisture at their roots they will not thrive if in a water logged condition like an aquatic. Sometimes it is the case that in rapid propagation by division the plants make rapid and strong growth and will not flower the first year, but if left undisturbed will, when their roots fill the pot, flower, and will after that blossom once or twice a year according to variety. Of course some varieties such as *Morganiæ*, etc., cannot be counted on for a heavy crop till they are well established and strongly rooted when they should become very floriferous, carrying often two and three flowers on a stalk.

WM. MATHEWS.

Cacti.

CACTUS.

Here we have a group of 29 kinds of cacti showing a good many different types. They are queer, weird, interesting plants, but as they look there one can hardly call them beautiful. There is a peculiar fascination about them, however, and once a person gets to know them, the interest in them deepens, and pretty soon he will be "a crank" and eligible for membership in the Baltimore Cactus Club.

We have a particularly warm feeling for cacti. A good many years ago we had charge of an extensive and very beautiful and choice collection of the spiny beauties; we planted them out of doors in summer, lifted and potted them in August before the cool dewy nights of autumn came upon them, and kept the manageable ones in a cold frame for a month, covering it with sashes at night and in moist weather, but removing the sashes in the day time in fine weather. In this way we saved them from rust. There fresh and clean and glistening in their fatness, in their clean pots and standing on a bed of coal ashes they really were beautiful as plants. And some of our proudest moments were when one summer the late Dr. Englemann of St. Louis—our greatest scientific authority on cacti—used to sit down with us on the side of that frame, an hour at a time, admiring the little beauties, verifying their names, and telling us about them as he found them in their native wilds.

As plants perhaps they are more odd than beautiful, but when they are in bloom many of them are superb, and their flowers bright and gay, even gorgeous. At the same time there are modest little plants among cacti, and some are commonplace, just as we find in every order of plants, even among the aristocratic orchids.

Our illustration, from the Botanical Guide to the Phipps Conservatory, Pittsburg, Pa., shows a group of cacti arranged a purpose to have their picture taken, then each kind was numbered and named by Mr. A. Blanc, the cactus specialist of Philadelphia. The following are the names, the number corresponding with the same ones in the illustration.

1. *Cereus gemmatus.*
2. *C. variabilis.*
3. *C. Jamacari.*
4. *C. Peruvianus.*
5. *C. grandiflorus.*
6. *C. Micheldii.*
7. *C. Pasacana.*
8. *C. pugioniferus.*
9. *C. Dumortieri.*
10. *Echinocereus eumeacanthus.*
11. *E. pectinatus.*
12. *E. viridiflorus.*
13. *Pilocereus senilis.*
14. *Mammillaria applanata.*
15. *M. candida.*
16. *M. crassispina elegans.*
17. *M. elegans.*
18. *M. Krameri.*
19. *M. micromeris.*
20. *M. pusilla.*
21. *M. tuberculosa.*
22. *Anhalonium prismaticum.*
23. *Echinocactus bicolor.*
24. *E. cylindraceus.*
25. *E. Grusonii.*
26. *E. longihamata.*
27. *E. rhodophthalamus.*
28. *Opuntia.*
29. *Pereskia.*

It is winter, and a vital question with those who grow cacti is—What should I do with them now? Of course the answer must be qualified to suit various conditions and kinds.

Some cacti as *Opuntia vulgaris, O. Missouriensis*, and *O. Rafinesqui* are hardy and should be left alone out of doors, always taking care that they are growing on ground high enough to be above water pools in winter.

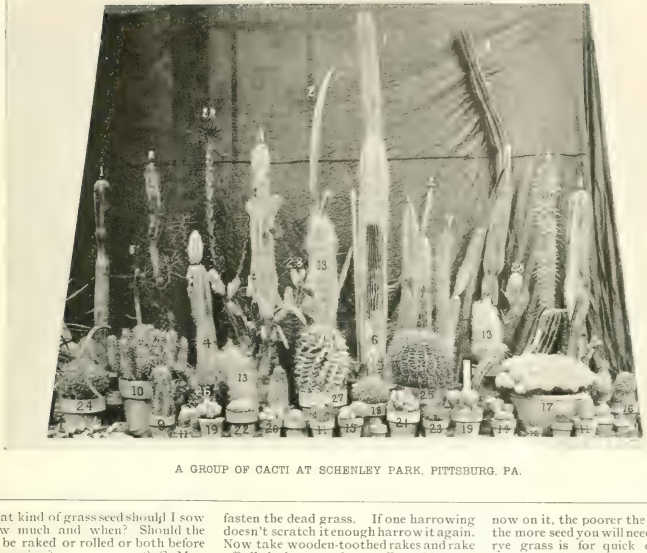
Many species of different genera from the far west and south western states, although not hardy at New York will bear a good many degrees of frost with impunity, but our advice is, keep them away from frost, for it does them no good. Keep them cool and dry in winter, especially dry overhead.

Our epiphyllums, or lobster-claw cactus are in bloom, and bright and pretty they are in December. They together with the different kinds of phyllocactus (or flat leaved cactus), and cereus of the night blooming order love a little warmth in winter, say 50° or thereabout in a greenhouse and the temperature of an ordinary room, in a dwelling house. If they are very healthy and well rooted water them sparingly, if they are sick give them less water or none at all. Echinops, echinocactus, mammillarias, and other cushion or bunch cacti may be kept on a shelf and pretty dry; they don't need sunshine while at rest, so may be kept in a shady room. The cellar is a poor place for cacti. Because they don't die right off does not signify that they enjoy their quarters; they dislike the stagnant, muggy atmosphere of a cellar and too the parching breath and dusty quarters of the furnace. Under the stages in a greenhouse, where florists often put them, is a very bad place for cacti.

The Flower Garden.

RESTORING A WORN OUT LAWN.

I have an old lawn of about five acres which has been neglected for many years and the grass is thin and poor in quality. It is naturally good grass land but needs manuring. I do not want to plow up the lawn if it can be avoided, but am anxious to improve the grass. I shall be obliged for any suggestions as to the best methods of treatment. Will it be best to apply New York stable manure which can be had for $2.25 per ton on cars here, or would a good commercial fertilizer or ground bone and wood ashes be better? How much of each should be applied to produce the best results and when should they be put



A GROUP OF CACTI AT SCHENLEY PARK, PITTSBURG, PA.

on? What kind of grass seed should I sow and how much and when? Should the surface be raked or rolled or both before or after sowing? S. C. M.

Morrisville, Pa.

If the land needs draining have it tile-drained at once. If there are any old tree stumps in it or rocks near the surface have them dug out and removed and in filling up the holes have them packed solid from the bottom up as well as at top, filling them up level. If there are any other hollows in the lawn have the sod skinned off of them, fork them over and tread them firmly, and fill up level and firm with loam from elsewhere. If there are any bumps on the lawn skin the sod off of them, dig off the bump, laying it aside, then dig out and remove enough of the subsoil to bring the patch to a little less than level after the top soil has been replaced, and cart a little fresh loam on to the surface, treading all quite firm. Now go over the lawn and pull out every big perennial weed you may see in it, these may consist of mulleins, docks, bunches of wild onions, and the like, of course as dandelions, plantains and many other weeds don't show themselves much before spring there is no need bothering them now, simply take what you can see and get a good hold of. If you cannot pull them up easily pry them up with a digging fork, then pull them out and tamp the ground down firmly with your foot.

Now your ground is level and smooth and preparing for the grass is what concerns you. Just as soon as the weather is open and the ground is free from frost and dry enough to work get a light iron-toothed harrow and run it lengthwise and crosswise over the face of all the lawn, this will scratch among the grass, root out some tussocks, tear among creeping weeds as veronica, mouse ear chickweed, yarrow and sorrel, and unfasten the dead grass. If one harrowing doesn't scratch it enough harrow it again. Now take wooden-toothed rakes and rake off all the loose surface stuff as old grass, roots, sticks, stones, and the like torn up by the harrow into little heaps or ridges and cart it off as you go along. If your land was good and sweet and rich on the surface it would now be ready for the grass seed, but as you say grass on it is poor, it evidently needs recuperating and strengthening. Prepare a big heap of compost, say one-half or one-third in bulk of loam from any cultivated field, and the other half or two-thirds of rotted manure; mix this well together and cart it out on to the lawn, giving a heavy dressing—one to two inches thick all over—and spread it at once. But don't sow the seed till there is a spell of open weather late in March or the first of April. There is no need for rolling the ground now, the rains and snows of winter will compact it enough and leave it in better condition for sowing than if it were rolled. The topdressing won't hurt the grass that is there now, instead it will be of great benefit to it, and it will come up in spring with renewed vigor, but as it won't be thick enough or even enough and there will be bare patches on the lawn, is why you need to sow fresh grass seed all over it to get it equally green and in even sod.

When the time comes for sowing the seed drag over it to break the surface crust, run a link or brush harrow over the ground and rake off and cart away all the rough stuff, as the strawy part of the manure, then sow the seed broadcast over the lawn, and either harrow or rake it in and roll the whole lawn firmly.

For grass seed use 2 bushels Kentucky blue grass, 2 bushels red top, 1 bushel rye grass and 6 pounds white clover, mix all together and sow at the rate of two to three bushels—according to the hareness of the ground or poverty of the grass now on it, the poorer the grass now there the more seed you will need—per acre. The rye grass is for quick effect only and should not be used so thick as to hurt the other two finer grasses. Some people don't like clover in a lawn but it is a capital thing for dry weather and stiff or clayey ground. In mixing the grass seed if you sift a lot of ordinarily moist mellow loam and mix this with it, it prevents the clover seed from falling to the bottom of the heap, and holds it equally distributed among the grass seed, also you can sow the seed with perfect ease even if there is a little wind stirring, and it will fall evenly where distributed without being wafted before the wind as it would be if perfectly dry and free from earth.

BLUE-FLOWERED HYDRANGEAS.

Novice, Chicago, writes: "In the summer of 1892 I bought in Boston two tubs of beautiful purple hydrangeas. Each successive season since the blue color of the flowers has faded. This year they were of a light purplish pink color. Can the color be restored, and if so kindly inform me how? They have been dressed with iron filings. Where can purple hydrangeas be bought?"

How to obtain and retain the blue color in the blossoms of hydrangeas is beyond our knowledge, and how to prevent the blossoms that are not blue from assuming the blue tint is as much of a secret from us. This seems heretic on our part in view of the numberless articles we have noted in books and papers telling us exactly how to get this blue color if we want it, or get rid of it if we don't want it. But we can not help that. Many years' experiment, study and observation have refuted our theories and upset our conclusions time and again, and to-day in this case we are floundering in the sea of "don't know how." The blue or purple not being a fixed color but the effect of

local or cultural conditions, even should you buy a good blue one, seeing it in bloom when you bought it, there is no certainty about it having blue flowers the following year. In view of this no florist can guarantee that the hydrangeas that are blue-flowered with him shall continue to be blue-flowered with anybody else.

CRINUMS, AMARYLLIS, COOPERIAS, ETC.

The following is in answer to J. D. W., Morgan Co., Ill.: Crinums, amaryllis (except *aulica* and *Belladonna*), cooperias and zephyranthes may be planted out in May in the open ground or plunged in pots as the person prefers (though the open ground will be best). In the fall when the first frost approaches lift them and cut off the tops and part of the roots and dry the bulbs quickly. Then keep them over winter in a warm dry cellar at about 60 degrees. One mistake people make is planting the bulbs too shallow, where the bulbs do not get sufficient moisture. A good rule is to plant the bulbs about three to five inches (according to size) beneath the surface of the ground, I mean the top of the main bulb and not the top of the neck. *Crinum Americanum* and *C. amabile* planted in this way will show their necks above the ground, while *Amaryllis formosissima*, cooperias, etc., will have the top of the neck below the surface. E. S. MILLER.

Floral Park, L. I.

YELLOW-FLOWERED IPOMŒA.—In the last number of GARDENING one of your California correspondents inquired after seed of a yellow ipomœa. If it is the *Ipomœa chrysantha* he refers to we can get him the seed. Several years ago we made a trial with it at Western Springs, Ill., but did not get it to bloom, perhaps we did not sow it soon enough. The seed we had then came from Mexico.

Chicago. J. C. VAUGHAN.

Trees and Shrubs.

PLANTING A SANDY HILL.

I have got a sandy hill that I am anxious to get something to grow on. Most of it is white sand. Can you advise me about it? C. E. A.

Woods Holl, Mass.

If your correspondent will look about in his neighborhood he will undoubtedly find similar soil that is covered with vegetation. He will find first most abundantly and nearest the sea the sea sand reed (*Ammophila arundinacea*), a coarse stiff grass with long, though running root stocks, they very likely the couch grass (*Agropyrum repens*) especially near habitations. Of shrubs there will be found the beach plum (*Prunus maritima*), the wild rose (*Rosa lucida*), the meadow sweet (*Spiræa salicifolia*), bay-berry (*Myrica ceritera*); of trees and large shrubs several of the willows (*Salix alba, nigra, fragilis* and *discolor*), red oak (*Quercus rubra*), scarlet maple (*Acer rubrum*), white birch (*Betula populifolia*), the pitch pine (*Pinus rigida*).

In hollows a little protected from the full sweep of the wind a much larger variety would be found, and if these hollows are moist there will often be found growing with the deciduous shrubs a considerable proportion of evergreens like the ink berry and the cranberry, and on the dryer land the bear berry (*Arctostaphylos Uva-ursi*). He will notice too that all these things are slow to grow and slow to spread. If he has observed carefully plantations of cultivated plants near the seashore he will see that of the various garden plants that are used comparatively few do well in the most exposed places, and that of these few the California privet (*Ligustrum ovalifolium*), *Rosa rugosa*, tamarix and Indian currant (*Symphoricarpus vulgaris*) are the best.

To say what would be best for a particular place would be impossible without examining it, but if the following suggestions are adapted intelligently to meet the conditions, and careful observations are made of failures and successes, so as to avoid the one and continue the other, success will ultimately be gained. The two things to contend with are the force of the winds and the moving sand; the one must be broken and the other checked. To seed the ground is impracticable without a mulching to keep the sand in place, and in many places a mulching would be blown away. If it is slightly protected it would be well to collect a lot of the seed of the beach-pea (*Lathyrus maritimus*), which is quite common on or near beaches, and sow it on sand that has been fertilized with ashes, then cover the surface with a mulch of coarse litter, marsh hay, or the like, held in place with sticks or brush.

One of the cheapest nursery shrubs that will grow is the California privet, and this should be planted freely in belts as a windbreak for lower plants, and mixed with it the tamarix and strong rooted cuttings of willows. Where a lower planting was desirable use the wild rose, bayberry, Indian currant, meadow sweet and beach plum mixed together, and *Rosa rugosa*. Well rooted young trees may be planted occasionally among these with the expectation of their becoming established in time. Plant thickly at first, from one to two feet apart and mulch heavily with any coarse strawy manure, salt hay or litter. Close to the seashore or on places where bushes are not wanted sod the surface with one of the grasses named. Of the couch grass it is not difficult to get good sod that will hold together, and of the sea sand reed rough tufts can be secured with roots by digging deep. Generally in spring planting it is safer to keep the plants dormant as long as possible by frequent shifting and then plant late, for the spring storms are pretty sure to destroy the first leaves of newly planted shrubs so that they will have to make a new start. Of most of the kinds named small plants can be procured in nurseries in quantity at a low rate. If strong well rooted native plants can be collected they will grow but they should be planted more closely than nursery specimens.

Do not expect to get the same success with plantations in drifting sand that would be secured in better soil, or the same effect, for you can not. The chief object will be to get an unbroken ground covering. The character of this can be varied materially by different combinations of the comparatively few plants that can be used successfully, and the result will be by no means unattractive.

WARREN H. MANNING.

Brookline, Mass.

ARE JAPANESE MAPLES HARDY NEAR CHICAGO.

My experience with these maples is confined to limited trials on my own grounds and observations of the experiments of a few others, all within half a mile of Lake Michigan. Some plants have lived through two winters and each spring looked as if ashamed to acknowledge it. Neither did they get over their bashfulness all summer. When wrapped with straw they do better, and perhaps away from the lake winds might thrive. Frost in the ground does not seem to injure them, as the balls of my potted specimens get well frozen. A glance at the illustration in GARDENING of January 15, 1893, will show that they make novel and handsome specimens for porch decoration. Being in partial shade, the leaves retain their brilliancy of color well towards fall, and also color up as well in the fall as if outside. Plant them in rustic wooden boxes, as ordinary flower pots would break by expansion of the frosty soil in spring and winter them in a cool cellar or barn. In spring, when the buds are expanding keep them from sudden cold changes of wind, I have known a sudden change to destroy many of the young leaves. W. C. E.

Chicago.

SOME NEW OR RARE TREES AND SHRUBS.

Among trees and large shrubs *Styrax Japonica*, *Halesia hispida*, *Staphylea Bumalda*, *Phellodendron Amurense*, *Idesia polycarpa*, *Hovenia dulcis*, *Dimorphanthus Mandschuricus*, the red flowering dogwood, the golden barked willow (*Salix vitellina aurea*) and *Salix Britzensis*, also *Cedrela Sinensis* and *Gordonia pubescens*.

The halesia is one of the best of the newer small trees; it has large leaves and a profuse display of drooping racemes of white flowers. The staphylea is a large shrub that has small clusters of white flowers in early summer and which look not unlike those of a white lilac. Phellodendron makes a good sized tree, grows fast, has smooth, dark bark and seems free from insect pests. It has compound leaves and clusters of greenish white flowers which are followed by berries which turn black in the fall. Idesia has fine large single leaves on long reddish stalks. Its flowers are inconspicuous and borne in clusters and noticeable only on account of their prominent yellow anthers. Though hardy here it is not reliably so north of this. Perhaps a little protection for some years until it gets started would help it.

The hovenia is a good sized spreading tree with a slight "mulberry" look to it when a little distance off. The flowers are in flattish clusters, white and give place to berries which turn dark brown in autumn. Dimorphanthus differs from our native Hercules club in flowering a week or ten days earlier. It has immense handsome heads of greenish white flowers in late summer.

The red flowered dogwood (*Cornus florida rubro*) is a beautiful small tree with all the good qualities of the typical form and the additional one of having bright pink flowers. The willows mentioned have beautifully colored wood in winter; that of *vitellina aurea* is deep yellow, and of *Britzensis* flame colored. The *Cedrela Sinensis* is an ailantus looking tree [It is now named *Ailantus flavescens*—ED.], the flowers of which are on drooping, string-like racemes, but there is no such odor to them as makes the common ailantus so unbearable. The gordonia has beautiful white flowers and is quite rare. While hardy here, it cannot be recommended for planting much further north.

I may also mention *Viburnum plicatum rotundifolium*, *Andromeda racemosa*, *Caryopteris Mastacanthus*, *Hypericum*

Moserianum, *Prunus pendula*, *Stuartia pentagyna*, *Corylopsis pauciflora*, *Diervilla sessilifolia*, *Vitex Agnus-castus*, blue; *Berberis Thunbergii* and *Cistus laurifolius*. Although some of these are quite old in cultivation they are almost unknown here as useful shrubs. The viburnum is a variety of the Japanese snowball, with larger "balls," and it blooms a week or more in advance of the other. Its foliage also changes from green to a reddish brown late in the fall. Although the andromeda is a common wild shrub in some localities, it is not cultivated as much as it ought to be, for its pretty white flowers in spring, and also because in the fall it displays its embryo raceme for the next year, and which is of a pretty reddish tint, just as is that of the Japanese one (*A. Japonica*). The caryopteris is new. It has stood a winter with us very well, but it has not been tested much yet. It bears an abundance of blue flowers late in autumn. It appears to be of a half shrubby nature; when rubbed the leaves emit an odor not unlike turpentine. This hypericum bears very large yellow flowers, blooming freely from mid-summer till fall. It needs further testing in regard to its general hardiness. When the prunus named is grafted at six feet high and its branches droop almost to the ground it presents a lovely sight when bearing its bright pink flowers in spring. Before now the stuartia has been so hard to get that it is very little known in gardens, but this need not be the case nowadays. It has beautiful white flowers. Much the same is true of the diervilla mentioned. It bears yellow flowers in midsummer and later.

The lilac colored *Vitex Agnus-castus* has been long in cultivation, and is esteemed for blooming late in the fall. There is now a blue and a white one, two desirable acquisitions. The *Cistus laurifolius* has large white blossoms in June; it is an evergreen shrub and has proved entirely hardy here grown without protection for several years past. JOS. MEEHAN.

Philadelphia.

SHRUBS IN FLORIDA. In answer to H. A. B., St. Louis: We have sent your inquiry to our Florida correspondent.

The Fruit Garden.

THE FRUIT GARDEN.

Strawberry beds are mulched. Raspberry and blackberry canes should be buried, if it is necessary to protect them. The planting of trees and bushes should be finished by this time till next spring.

PRUNING cannot be finished in a day or a week, or on a place like this in a month but we keep at it till it is finished, grape vines first, fruit trees last. See what was written about grape vines, berry bushes and strawberry plants last issue (page 91). If you wish to increase your stock of grape vines layer some of the canes by elbowing them a few inches deep into the ground, leaving part of the cane—one, two or more eyes—sticking out of the ground. In a year they will make fine plants.

CUTTINGS.—If you want to raise grape vines from cuttings cut these into lengths of two to three joints, tie them into little bundles, and bury them in ordinarily moist earth, sand or sawdust out of doors in a dry place and mulched from frost, or in a deep box in a shed or cold cellar, to remain till early spring, when they may be taken out and planted in close rows in the garden. In burying the bundles of cuttings, however, be very careful to have the bottom ends of the cuttings up, and the tip or growing ends turned down, leaving them in this way till spring. In planting them out in the open ground change them to tip end up and base end down We treat most all hard wood deciduous cuttings in this way, not only of grape vines, sand pears, and berry bushes, but also of ornamental shrubbery.

LOOK OVER THE FRUIT in the store room or cellar and whether in barrels, boxes, or bins, or in drawers or on shelves. Pick out every decaying fruit. If you find an apple or pear that is decaying and the rotted part has burst, wetting other fruits that have touched it, take out these sound ones, and wipe them clean and dry. On account of the premature ripening of much fruit caused by the unusually dry summer, apples in particular are not keeping very well, so need extra attention. If you have some very fine apples or pears that you wish to preserve for dessert or baking wrap them up separately in soft dry paper and keep them in drawers or boxes in a cool but frost proof room or dry cellar. If you have any hothouse grapes cut with a piece of the cane attached to each bunch and whose base ends are stuck into bottles of water, cut a thin slice off the end of each bit of cane once a week replacing it in the water again; this will keep the berries plumper and better tasted than were the canes left untouched after being first inserted in the water.

Miscellaneous.

COMMON NAMES OF PLANTS.

Edgemoor's request (page 58) for the more frequent use of common English names in articles referring to them, is in keeping with my ideas, but unless the botanical identity accompanies them much confusion would arise. Many common names have but a limited habitat. In some places in Arkansas *Forsythia viridissima*, a shrub growing six or more feet high, blooming in early spring and known in the east under the common name of "golden bell," is called a "golden rod." Edgemoor has this herbaceous perennial growing wild on his place and blooming in the fall and an article from Arkansas on their golden rod with only the common local name given would puzzle him. An esteemed neighbor of Edgemoors, a number of years ago saw in an eastern garden some fine plants in bloom of the *Funkia subcordata* sometimes known as the plantain lily, but the name as given him was simply the "day lily." Next spring he ordered quite a number from a nursery using only the term "day lily" and when his plants came into bloom he found he had the ordinary *Hemerocallis fulva* commonly known as the tawny day lily. He wanted a sweet scented white flower and obtained a tawny yellow scentless bloom. The common name sycamore is given to different trees in different countries. All on account of a certain resemblance of the leaves. The common snowberry of the east is known as wolf berry in the far west. [The snowberry of eastern gardens is *Symphoricarpus racemosus*, the wolf-berry of the west is *S. occidentalis*. Although they are distinct species, both have white berries. —ED.] What we know in Illinois as "Hercules' club" (*Aralia spinosa*) is known elsewhere as devil's walking stick, and in Mississippi as "Tar tree" because the negroes say that its spines "tears their clothes." I believe in the use of common names when confusion would not follow, but what are we to do with the many fine things Japan and other countries are sending to us—all comparatively new? Who is authorized to give them a common name? [The common people, that is you and the like of you who love flowers and plants and grow them because you love them. For mercy's sake let us keep that job out of the hands of scientists.—ED.] If my friend Edgemoor finds that some plant of recent introduction thrives in his section, and is worthy of culture if he will describe it and bring it to my notice under its recognized botanical name, then I or any of your readers would know just what to ask for if we desired to try it. W. C. E.

[Your friend used the name "day lily" generically as one would say rose bush or apple tree, probably not thinking that there were many kinds of day lilies as there are many kinds of roses or apple trees; had he asked for white day lily he very likely would have got what he wanted. We should be specific in the case of common names as well as in the case of botanical ones. Take sycamore trees for instance. By saying American sycamore, Oriental sycamore, or sycamore maple we know what tree is meant just as well as if the botanical name were used, at the same time the botanical name used parenthetically is a perfect safeguard against mistake.—ED.]

THE CELLAR.

There are many plants we can stow away in a cool dry cellar over winter. Oleanders, myrtles, sweet bay trees, orange and lemon trees, pomegranates, fragrant olive, pampas grass in tubs, *Daphne odora* after it has bloomed, crape myrtles, and others all established in tubs or pots may be stood close together, but so as not to smother one another, and so that we may see and get at them easily to water them if we want to. A little frost won't hurt any of them unless it be the orange and lemon, but it won't do any of them any good. Much heat, as caused by a furnace, will hurt any of them. All evergreen plants except cacti and some other succulents need water when they are at rest, but in limited supply.

Many plants that we lift from the flower garden in fall and plant out in spring as daturas, fuchsias, hydrangeas, lemon verbena, erythrina, and the like may also be wintered in the cellar. Cut their tops in considerably, then store them close together, packing their roots in moist earth either on the floor or in a box. They don't need any water, simply have the soil they are packed in a little moist.

Other occupants of the cellar may be amaryllis bulbs, caladiums, gloxinias, achimenes, tuberoses, and the like on a shelf where the air is warm and dry; also dahlias, cannas and gladioli where they can be kept dry and frost can not reach them.

Don't let any of the plants get over wet, nor the evergreen ones dust dry; don't water anything overhead. Pick off mouldy and decaying leaves. Ventilate freely in mild weather, but don't admit frost or snow or rain. It isn't necessary to ventilate it every day, treat it just as you would were there no plants there and you wished to keep it sweet and clean.

GARDENING

WILLIAM FALCONER, Editor.

PUBLISHED THE 1ST AND 15TH OF EACH MONTH
— BY —
THE GARDENING COMPANY,
Monon Building, CHICAGO.

Subscription Price, $2.00 a Year 24 Numbers. Advertising rates on application.
Entered at Chicago postoffice as second-class matter.

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All communications relating to subscriptions, advertisements and other business matters should be addressed to The Gardening Company, Monon Building, Chicago, and all matters pertaining to the editorial department of the paper should be addressed to the Editor of GARDENING, Glen Cove, N. Y.

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ASK ANY QUESTIONS you please about plants, flowers, fruits, vegetables or other practical gardening matters. We will take pleasure in answering them.

SEND US NOTES of your experience in gardening in any line; tell us of your successes that others may be enlightened and encouraged, and of your failures, perhaps we can help you.

SEND US PHOTOGRAPHS OR SKETCHES of your flowers, gardens, greenhouses, fruits, vegetables, or horticultural appliances that we may have them engraved for GARDENING.

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LÆLIO-CATTLEYA × DECIA.—This is a new bi-generic hybrid orchid that was exhibited by James Veitch & Sons in London, November 27, and was awarded a first class certificate by the Royal Hort. Society. *Lælia Perrinii* was the female parent and *Cattleya Dowiana aurea* the male one. The shape of the form of the flower somewhat resembles that of the mother plant, but the blossom is larger in all its parts than that of *Perrinii*. The sepals and petals are rosy-lilac shaded with silvery white along the middle and at the base, the lip is rather abruptly reflexed and of a rich mauve purple color, the interior of the tube is pale purple veined with yellowish white.

SWEET PEAS IN AMERICA.—A writer in an English paper says "In America annual exhibitions of sweet peas only are held, and this has undoubtedly done much to popularize the flower." About these exhibitions, may be so, but where, when, and by whom?

CHRYSANTHEMUM MRS. W. H. GODFREY is a new hairy, pure white flowered variety, a seedling from Mrs. Alpheus Hardy, and it is said to have larger blossoms and more massive petals than it; also that the plants are strong, dwarf, and of fine habit. In short, it is better in every way than its mother.

THE BOOK OF THE ROSE.—The *Gardeners' Chronicle* tells us that the Rev. A. Foster Melliar has issued "a new treatise on the history, cultivation and varieties of the rose. As the work of a sound and experienced practitioner this will be received with acclamation." We also learn from the same authority that

SEEDS OF POLYGONUM SACHALINENSE, the new fodder plant, were successfully germinated in the gardens of the Agricultural and Horticultural Society of India, at Calcutta.

THE VARIEGATED CORNUS BRACHYPODA.—A. T. R., Greensboro, N. C., and others ask where they can procure it. We got it from H. H. Berger & Co., San Francisco (see their advertisement in GARDENING). We believe that Parsons & Sons Co., Flushing, N. Y., and some other of our leading nurserymen also have it in stock.

CARNATIONIST is a new name sometimes given to—or adopted by, rather—commercial florists who make a specialty of growing carnations; but so far as we know it is in use only in this country. We must admit it is neither a happy nor necessary appellation. Its unseemliness, however, appears to concern the folks in other countries a good deal more than it does us here.

ONE FLOWER TO A STEM.—The magnificent chrysanthemum blossoms grown nowadays are obtained by restricting the number of flowers to one to each stem or main branch, every other bud (aside from the one retained) being removed as soon as it can be got hold of. With the view of perfecting their roses and carnations our florists pursue a similar course, removing every bud on the shoot except one. And it pays.

PEAR DR. JULES GUYOT.—A "Fruit grower" writing in the London *Garden* says: "The ever popular Williams' Bon Chretien [what we call Bartlett.—Ed.] may eventually be superseded by Dr. Jules Guyot, a variety considered more reliable, and the fruit extra fine is of somewhat better quality." This new pear will have to be a marvel of goodness before it can displace the Bartlett, which is the best all-round variety we have here.

MICE EATING FERN FRONDS.—We all know how fond mice are of carnations, but this season we have a new experience with the little pests: They have nibbled the out edges of all the young fronds of a batch of young plants of varieties of *Pteris serrulata* we had on a bench, but have not touched any other sorts so far as we have observed.

THE WHITE-FLOWERED SWAINSONA that has recently become a very popular greenhouse pea shrub has also proved an attraction to the mice, they eat its leaves off clean. That it is good for food seems to be a new discovery by them, for they never touched our plants till a month ago. We caught them at it. Kill the mice is the best preventive; but syringing the plants with anything distasteful to them will have a deterring effect upon them.

PATRIOTIC TO BE SURE.—A British seedsman in an address the other day said that the firm intended to "grow all their seeds on British land, with British money and with British men." But he didn't add "and sell them to British people only." Had an American seed firm made such a boast about America we should immediately infer that its seed list was limited, and as the list is the customers are apt to be also. No, we grow or have grown or buy our seeds where we can get them the best, the purest and cheapest, at home or abroad, and sell them to anybody who will buy them and pay for them.

GEORGE S. CONOVER CHRYSANTHEMUM.—What about it? Why don't we find it at our exhibitions and spoken of generally? Because, we presume it has been distributed among amateurs rather than in the channels of exhibitors and the trade. But it is a good one. It is a fine, large, bold, deep yellow flower of good substance. The plants are stout and stocky, and the stems strong and stiff and well clad with healthy, succulent foliage. It is one of the best varieties we grew this year at Dosoris. When it was at its best we often wished the genial old gentleman after whom it was named could have dropped in to see it.

THE LONDON "GARDEN" INDEX.—*The Garden*, that journal of artistic beauty and practical excellence is now in its forty-second volume. After it had completed its first twenty volumes it published an index of them. This was a great boon to those who had occasion to refer to the volumes for information, for the convenience of finding at once in one index what without it we might have to search the twenty indices for was very great. Now the friends of the paper are clamoring for another index, this time of the second twenty volumes, but as the work will be both laborious and expensive the editor can only "consider its preparation if a sufficient number of subscribers will undertake to put down their names as subscribers for it." Please enter our name. We are delighted at the prospect of getting the index.

DESECRATED CHRYSANTHEMUMS.—The blossoms of several new varieties of chrysanthemums, with stems wired to keep them up straight to support the flowers, and with a wire hoop under the blooms to support the spreading lower petals were exhibited this season in London, and considered by the Royal Hort. Society. Instead of disqualifying them at once or promptly ignoring them as frauds, it was ruled that precedents permitted this desecration, in fact, in some cases, where the flowers had to be sent a considerable distance this stilting was necessary! Well, we haven't descended to such weaknesses in this country. Cut flowers are sent from Chicago or Indiana to New York or Boston, a thousand miles, on their merits, without a stilt or wire, and then have to take their chance alongside of blossoms grown within a few miles of the exhibition hall. Away with your stilts, and wires, and green painted board stands, and let the blossoms at our flower shows be unsupported by any other brace than their own good stiff leafy stems.

GARDENING is very much appreciated hereabout. All of my customers for it

have renewed their subscription, and Mr. W. H. Monroe, one of our brightest and best gardeners, told me he would take it if it cost $5 for it is worth it.

J. A. WILSON.

Stationer, Beverly, Mass.

The Vegetable Garden.

GROWING TOMATOES IN WINTER.

In the production of tomatoes under glass for winter there seems to be a varied opinion as to which means are the best to produce the greatest weight of fruit in the smallest space of house, but unless they are grown to the best advantage in these times of close competition with the southern growers they will not pay, for their market value has decreased within the last few years, and it is only by the production of the finest fruit in midwinter that there is a profitable outlet for them. One may read of big prices being obtained, but to get those prices is not an easy task.

It is very essential to make a proper start. A good time to sow the seed is about the first week in August. As soon as the plants are large enough they should be potted into small pots and later transferred into larger pots to fruit in them, or planted out into a greenhouse where they are to remain. If intended to be grown in pots these should be about twelve inches in diameter and well drained and the plants should be potted very firmly to prevent them making a soft growth, which is very detrimental to their fruiting. If to be planted out the beds should be about eight inches deep, including two inches of drainage to prevent stagnation.

There should only be sufficient soil put in at first to enable you to cover the roots thoroughly, say about three inches, adding soil from time to time as the roots come near the surface, for if it is all put in together they will make a rampant growth and will be near the top of the house before showing fruit, but by giving them a little soil at first the growth from the commencement is short jointed and firm, and consequently will produce more fruit near the soil.

A good turfy loam with about one fourth part decayed manure added, and well mixed together, will suit them admirably. While they are growing and when the soil is well filled with roots a little bone dust will do them good. Nitrate of soda is also a good stimulant when the crop is swelling, or cow manure diluted with water suits them well. They should be planted about two feet apart each way and either be trained to a single stem or two or three shoots can be left to each plant. If the latter plan is decided upon of course fewer plants will be required. In each case the lateral growths should be removed as soon as they appear. Plenty of air should be given on all favorable occasions, and every inducement given them to make a sturdy growth from the first.

The blooms will need to be fertilized to enable them to set their fruit; this is best done by a small piece of fur or a rabbit's tail tied to the end of a stick, or a sharp tap of the wire they are tied to will also help to distribute the pollen. The best time to do this is near the middle of the day when the sun is shining.

They can either be trained to wires running perpendicularly through the house, or in any position where they will get the greatest amount of light without the plants shading each other too much. If trained on the roof they must be far enough away from the glass to prevent the frost from touching them.

A temperature of about 60° at night with 65° by day and a rise to 70° with sun heat will suit them. Be careful to avoid a stagnant atmosphere, as it is conducive to mildew. On the other hand a hot dry one is to be guarded against for fear of red spider.

They can also be propagated from cuttings taken from plants growing in the open ground, and this plan is to be recommended if your stock outside is clean and healthy and the variety is adapted for forcing. The cuttings will root in about two weeks if inserted in sand in a shady part of the greenhouse or in a hotbed sash. They should be kept close for a few days, and when rooted have plenty of air to keep them sturdy. These plants will show fruit nearer the ground sooner than seedlings will, and they will continue to bear quite as heavy crops.

The best variety for winter that I am acquainted with is Lorillard. It is of good color and not too large, and it is a first rate shipper. Dwarf Champion being of shorter growth is well adapted for small houses, but while the fruit is very firm it lacks the solidity and color of the former, a very important point in a critical market.

THOMAS GRIFFIN.

Westbury Station, Long Island.

A BOOK ON TOMATOES.

We notice in issue of GARDENING December 15, page 107, in answer to a question as to where a book on the tomato can be had, you say there is no book on the subject that you have seen. We therefore take the liberty of mailing you a copy of our book, "Livingston and the Tomato," and hope it will reach you safely.

A. W. LIVINGSTON'S SONS.

We have received the book and are glad to get it. It contains over 170 pages and is well illustrated. Most every detail of cultivation in the outdoor garden and field, and for profit is gone into in a practical, easily understood manner. We may say to our readers that the author of the book is a tomato specialist, and the originator of many of our very best varieties as Livingston's Perfection, L.'s Beauty, Acme, Paragon and others. The book is very instructive and a desirable one to get.

"TOMATO CULTURE" is another book, it comes to us from A. I. Root, Medina, Ohio. It contains over 130 pages, and has a good many practical engravings. It is divided into three parts, first, tomato culture in the south, second, tomato culture especially for canning factories; and third, plant growing for market and high pressure gardening in general. The little book is full of suggestive ideas and especially about cheap hotbeds and economical work, how to grow tomatoes out of doors and make money out of them.

TOMATO "VINES."—In the reference to the *Gardeners' Chronicle* quotation from my Annals of Horticulture, page 90, I am made to appear as saying that the tomato is the "fruit of the vine, just as are cucumbers, squashes, beans," etc. The quotation referred to is taken from page 46 of Annals for 1893, where it is quoted as the incidental language and decision of Justice Gray when concluding that tomatoes, in the eye of the law, are vegetables. The words are included in quotation marks and the type is smaller to show that I borrowed them. L. H. BAILEY.

ASPARAGUS.

The Oyster Bay asparagus is considered the best brand in the New York market, and as the soil in this town is so well adapted to the cultivation of this vegetable, it is the principal crop grown by the farmers. The main shipping point is Locust Valley station. Glen Cove is also in the town of Oyster Bay, so we are right in the asparagus country.

But growing for market and for home use are quite different, and we should disadvise amateurs growing their asparagus as the market growers do.

The land in this section varies from a light sandy loam to a substantial brown loam. Asparagus is grown in all of it, and does well in either case. The sandy soil has a sandy bottom and needs more manure than the hazel loam, which often has a hard pan. In the sandy soil the "grass" comes up perfectly straight and is easy to cut; in the other it is often bent or twisted by a clod, and it is harder to cut. The "grass" is cut white. The market growers know just as well as you or we or anyone that the green grass is the best to eat, but as the market won't take it, what's the use of growing it?

The farmers prefer the biggest stemmed "grass". Those who buy their seed ask for Colossal, but most of them save their own from a few marked plants in their fields. The seed is sown early in spring in rows 15 inches apart, in good, mellow, rich ground. The following spring the seedlings are planted out.

The field is marked out in single rows 4½ feet apart, and each row is furrowed out 16 to 18 inches deep below the level of the ground. Into this pit two to three inches deep of manure is spread, then about two inches of dirt over the manure and on this the plants are set 16 to 18 inches apart. About two inches of earth are placed over the plants. The point they observe is to have the crown of the asparagus about 14 inches under the surface of the ground. When the plants begin to grow and the land needs cleaning or cultivating, at every cleaning considerable earth falls into the pit, and in this way the ditches are filled up gradually, and the plants are not smothered. By fall, the first year, the ditches are pretty well filled up.

Cutting begins about the 25th of April and lasts till the end of June. If the one year old plantations are vigorous, they are cut clean for a week, and then allowed to run to growth.

The two-year old plantations are cut clean for a few weeks, say till the end of May, and then allowed to run. A three-year old plantation is considered in pretty good bearing, but so as not to weaken it too much cutting it stops about the middle of June. A four year old field is regarded as prime, and it lasts in fine bearing for five or six years, after that it weakens gradually. In and after the fourth year cutting lasts till the end of June, and during the season of cutting not a vestige of "grass" big or little is allowed to grow above ground; what isn't big enough to use is cut and discarded. This clean cutting eliminates the breeding ground and food supply of the asparagus beetle, hence helps to greatly lessen its numbers and ravages. Besides, were the big grass cut and the small grass left "to strengthen the crowns" as one might think, they would incline the food furnished by the roots away from the still pushing shoots, and lessen the tendency of more shoots coming, and they would also set eyes for next year's crop, and these eyes would be of a inferior grade. By cutting everythin

clean to the last the strong shoots push up to the detriment of the lesser ones, and set large crown eyes, which mean large shoots next spring. It is a case of the survival of the fittest; the strong become stronger and the weak weaker.

The white grass is produced by ridging the soil up over the rows 8 inches deep above the level of the ground. The beds are cut every day, every spear of grass as soon as its tip peeps above the ground is cut 9 inches long, which means 9 inches under ground. This is done with a long chisel-blade knife, 1¼ inches wide at the cutting end, and tapering narrower near the top, then it is bent to give purchase to the hand, and set in a common wooden handle; altogether the implement is 15 inches long. The saw-edge asparagus knife has always been disliked; in fact many of the farmers, before this new knife came out, used long-stemmed carpenter chisels.

The crop is sent to commission agents in New York, or to canneries in the neighborhood every day as cut. Some of the canning factories buy up the produce in the vicinity and in other cases (Lattingtown, within a mile and a quarter of Dosoris for instance) a few of the farmers join together and build a factory of their own and can their own grass. The present prices paid for prime grass is 10 cents a bunch, and 4 to 5 cents for culls or second quality, but some of the larger growers who made contracts with the factories last winter are getting 12 cents for prime grass. A bunch is about 9 inches long and weighs 2½ pounds.

Nowadays the factories are very particular about the grass they can; they have made a reputation for certain brands and must preserve it. A few years ago some canners in order to get their grass as cheap as possible would only buy it when it was cheap, and when the New York market would become glutted they would buy up the glut at 2 or 3 cents a bunch and ship it back to be canned. Those who have a reputation at stake don't do that now, indeed, so particular are they that not only must they get the grass as soon as it is bunched, but insist upon it that the grass shall not be stood in water before they get it. And when it is cut Saturday evening and kept over till Monday morning the farmer must keep it in a cold cellar and never stand it on end in a tray of water as he used to.

The ridging tends to produce large grass; under the surface it is larger than above ground. A fair crop from a plantation in good bearing, Mr. George Hall one of our best growers tells us, is about a thousand bunches per acre, a season.

Just as soon as the cutting ceases the ridges are plowed down and manured, the manure being spread along the center of the rows and then covered up. Farm yard is preferred. Our opinion is that the depth at which asparagus is now planted will be lessened by a few inches before long.

BEAN-WEEVILS.—Will R. N., Va., please send us a sample of his infested beans? The insect is probably *Bruchus rufimanus*, but we wish to make sure of this.

Mushrooms.

QUESTIONS ABOUT MUSHROOMS.

1. Have you spawn for sale, etc?
2. Can *Agaricus subrufescens* be grown successfully?
3. Is *A. campestris* the one generally raised for the market?
4. What profit is there in the business, assuming that it is intelligently managed?
5. How do you market them—commission men, hotels, families? Measure or weight?
6. What amount of bed surface would be required to furnish a given amount,—say $10 a week?
7. Would it pay to make a *cave* by digging into a hillside, putting up timbers and covering with earth? (Pitch manure in from above, and out to wagons, below).
8. Do you use or advise small packages, say like ice cream paper boxes, or is it as well to ship in bulk?
9. Is the market always good?

New Jersey. DR. O. B. B.

1. No.
2. Yes very. But it comes in crops, sometimes shyly, and at other times in extravagant abundance.
3. Yes, almost entirely. *Subrufescens* isn't known enough yet to cut a figure in the market.
4. It is impossible to tell. We know market gardeners who are now, and have been for thirty years, making money growing mushrooms for market, and we know men who went into the business without knowing anything practically about it and made a big success the first year and as big a failure the second.
5. They are sold by weight, and may be marketed in either of the three ways you mention. Large growers generally send to commission agents.
6. Three-fifths of a pound to the square foot of bed is considered a fair crop; beds often bear more, and not infrequently less. The price varies according to supply and demand.
7. In that way you could make a capital mushroom house, but whether it would pay or not we cannot tell. If you pitched in the manure from above you probably would prepare it above—for it needs preparation—and it depends a good deal on the convenience in preparing the manure for the beds and other local circumstances whether or no your plan is a good one. Remember that the best mushroom houses like the best plant growing greenhouses are not at all the most elaborate or expensive structures.
8. Before your mushrooms come in decide upon how and to whom you are to sell them; if to hotels or private parties use light cheap baskets holding a few pounds only, but if to a commission agent go to him and let him advise you about how to pack and ship the mushrooms; they like small baskets, or chip boxes. They will show you how to pack a good many small boxes into one basket or crate for shipment. While they may be willing to take all you can send them of A1 fresh mushrooms, bear in mind that it is to your advantage as well as to theirs to pack in small measures each holding say from two to four pounds,—packages so small that they can be sold directly to the consumers without being disturbed.
9. For A1 fresh mushrooms there is a steady demand.

SPAWN—SPURIOUS FUNGI—COST.

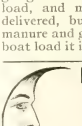
E. M. J., Arlington avenue, Baltimore, asks: 1. Is it true that the spawn procured from florists, when planted produces spurious, poisonous mushrooms as well as the edible, I have heard so. As I desire to engage in the business for profit I hesitated to make the venture on this account, fearing I might pluck the bad with the good (as I am not familiar with them). If it is true how can they be known and avoided?

2. From whom can I get the best spawn and what is the price, and what will be the probable cost of manure and loam.

---

1. If you cannot tell a good mushroom from a bad toadstool, let the business alone, or get somebody who knows mushrooms at sight to show you one. If you know a mushroom at sight, you cannot mistake it for anything else, or anything else for it. Spurious fungi are liable to spring up anywhere, even in your mushroom bed, but whether or no they were produced from the planted mushroom spawn cakes we cannot tell; anyone, however, who is at all acquainted with mushrooms would never give heed to such a fear.

2. The seedsmen advertising in GARDENING can supply you with spawn. Get their catalogues, the price is quoted in them. Every dealer's spawn is "best," no one keeps two qualities, while it is an easy matter to tell very good or very bad spawn, intermediate grades are puzzling even to experts. The cost of manure and loam is entirely a local matter; we can get good loam here for $1.00 a wagon load, and manure for $1.50 to $2.00 delivered, but by buying city stable manure and getting it here by the car or boat load it is considerably cheaper.



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Tower Hill, Ill., December 19, 1894.

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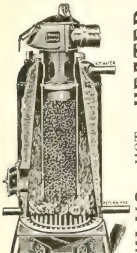
Kentucky.

I CANNOT TELL you have much I enjoy GARDENING, I know when I read articles in it that I can depend on what is said. As I have experimented with many plants and been tolerably successful I can almost tell when I read an article on plants whether it is written from practice or print, I mean copied in substance from some catalogue as many are. I read and reread every word in GARDENING, and am always interested in it.

MRS. J. DEWEES.

Morgan Co., Ill., Nov. 24, 1894.



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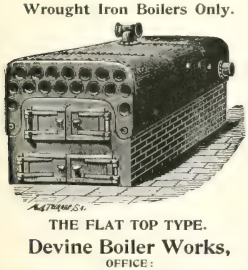

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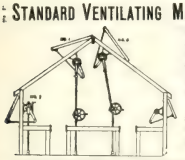

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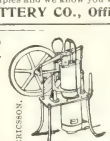

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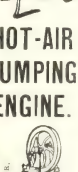

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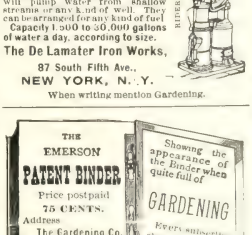

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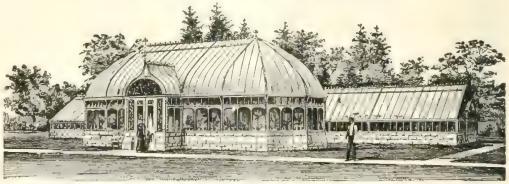

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GARDENING

Vol. III. $2.00 A YEAR. 24 NUMBERS. CHICAGO, JANUARY 15, 1895. SINGLE COPY 10 CENTS. No. 57.

AVENUE OF PIN OAKS IN FAIRMOUNT PARK, PHILADELPHIA

Trees and Shrubs.

AVENUE OF PIN OAKS IN FAIRMOUNT PARK, PHILADELPHIA.

This avenue of pin oak, (*Quercus palustris*) attracts the attention of every lover of trees who visits the park. The trees add interest to the grounds and well befit the broad avenue along which they are placed, indeed they proclaim to everybody how appropriate they are for avenues of this kind. These symmetrical trees are not old. Mr. Charles H. Miller, the landscape gardener, tells me they were planted about the year 1881. They were slim trees of about ten feet in height and with a stem not over one and one-half inches in diameter at that time, so that their present size has been gained in about thirteen years. I find they are now from twenty-five to thirty feet in height, with a spread of branches of about thirty feet in diameter, a good showing. The trunks average about one foot in diameter. The large tree in the centre of the picture behind the row of oaks on the right, is a tulip poplar (*Liriodendron tulipifera*); its rapid growth, large green leaves and smooth bark well recommend it for park planting.

Pin oak trees have become favorite with planters about this city, in a great measure because of the success of the park trees, and also because it has come to be known that this oak transplants almost as easily as maples do. I do not think the park lost a tree of the many in this avenue.

In planting these trees, a cart load of soil was dug out where each tree was to go, and good soil, composed of turfy loam and well decayed manure, was substituted for it. The trees were carefully dug and closely pruned, so close indeed that but little more than what looked like poles were left. As the trees were set and the earth thrown in the earth was firmly pounded in about the roots, until all was solidly filled in. I do not know if these trees were watered, but it is often of great advantage, as it carries the earth closely to the roots, for which purpose the pounding and ramming is done. This was in fall, and after the planting was finished, a cart load of soil was heaped up around the trunk of each tree, both to keep out the frost from the roots and to keep the trees from being blown about in gales of wind. This mound of earth is a most useful thing. The keeping of the roots in unfrozen soil through the winter is of great benefit to the tree. When spring came the mounds were taken away.

The pin oak is an excellent one for street planting. There are some in the built up portion of this city which thrive well. It is easily transplanted, has finely divided, shining green leaves, and when late fall comes its foliage changes to a light scarlet. As the branches have a drooping tendency it does not require as much space as the red and some other

oaks do. The trees illustrated would touch each other at 30 feet, so if 60 or 75 feet were given it would allow for development for many years to come. I may add that but one other oak, *Quercus discolor*, transplants as easily as the pin oak does. It is a tree of massive foliage and growth. JOS. MEEHAN.

Philadelphia.

FLORIDA SHRUBS.

H. A. B., St. Louis, writes: "Please inform me where I can find the shrubs mentioned by 'E.,' Florida, page 102. I cannot find them in the catalogues I have. Are they hardy in this locality?"

Send to M. E. Ten Eyck, DeLand, Florida. They are not hardy in St. Louis, but you can grow them well, by planting them out of doors in summer and wintering then in a pit, cool greenhouse or cellar as you would an orange tree or oleander. The bottlebrush shrub is largely grown in pots by some florists around New York to sell when in bloom as they do azaleas. The abelia is very easy to grow even here and will bear 10 or 12 degrees of frost with apparent impunity, and it blooms all summer with us. The cassia we winter in a greenhouse and plant out in summer for a display of yellow blossoms in late summer. The tecoma we haven't got but have sent for to try it.

YELLOW-FRUITED WINTERBERRY.

E. F. C, New Haven, Connecticut, sends us some sprigs of the winterberry (*Prinos verticillatus*) full of yellow berries, and one with the typical scarlet ones, for comparison, and writes: "It attracted my attention owing to the color of the fruit, as you will observe it is a light orange yellow instead of the usual brilliant red. Is such a break from the type a common occurrence?"

It is a very uncommon occurrence. At the same time yellow-fruited wild plants have been found before now, in fact there is one in cultivation. We have a specimen of it at Dosoris and it berries full every year; the color of the fruit is of a clearer and brighter yellow shade than that of the one you send. See it mentioned in GARDENING, page 137, January 15, '94.

SNOW ON EVERGREENS.—After every fall of snow it will pay you to put on your rubber boots and take a long bean pole or wooden rake and go around among your evergreens and shake the snow off of them while it is soft and will fall easily. This is to prevent the branches from breaking or becoming unduly spread by the weight of show. The greatest danger comes when the snow, by reason of sunshine or a little thaw gets wettish and then freezes on to the bushes or trees, when it cannot be easily shaken off, and if there starts a brisk windstorm big branches are apt to break and branchlets nip off.

The Flower Garden.

AN AMATEUR'S GARDEN.

I have taken a deep interest in the raising of flowers, and more particularly chrysanthemums; I am the lumber man referred to by Mr. Kempin his description of our recent flower show, page 100. For two years past I have received first premiums for the best general display, and all the information I received came through the columns of GARDENING. I am 67 years of age, and have a lot attached to my home. The garden has a southern exposure, and is 14½x65 feet with a 2½ foot walk in center, upon this small space of ground, I have several large rose bushes, one fine peach tree, and this year I raised 75 fine chrysanthemums, 37 of them I had on exhibition at Armory Hall at our recent show. Besides I raise verbenas, geraniums, etc., so you see my little piece of ground is pretty well utilized, (all my flowers are raised in open air). Upon the arrival of GARDENING, I invariably look at the heading, "Contents" to see if there is anything upon chrysanthemums, which I read and study carefully. It has only been during the last three or four years, that I have taken any interest in the raising of flowers, in fact before then I knew nothing about their cultivation. Any one who will take an interest and has a small space of ground with a southern exposure can do as well as I have and all the labor I gave them was morning and evening before and after business hours. J. C. H.

Frederick, Md., December 27, 1894.

LILIES.

Subscriber, Moundsville, W. Va., asks: "Are *Lilium Humboldtii* and *L. Washingtonianum* hardy in this latitude, and do they require more than ordinary care in cultivation?"

They should be hardy with you. We grew them at Boston years ago in superb condition. We had *Washingtonianum* in a large pocket in a rockery which was slightly shaded in the afternoon, in rich, deep, perfectly drained but not stiff soil. It bloomed every year in great beauty. In winter we laid a good armful of leaves over the patch and some twigs on them to keep them in place. Contrary to advice generally given, we did not plant the bulbs a foot deep, they were only four inches under the surface of the ground. The Humboldt lily also did well with us in another rockery in a level and more exposed place, but otherwise similarly treated. It did far better, however, planted out in a cold frame at the back of a wall. Our experience with these Pacific lilies is that they are not long lived and need watching to keep in good condition. But it is with them as it is with *auratum* and some others, they may luxuriate without a particle of care in one yard and no amount of care can coax them into good behavior in another garden.

FLOWERS AT CHRISTMAS IN NEW ORLEANS.

As our gardens look so lovely Christmas I must let you know what we have in bloom: First come roses, I have some thirty varieties in flower. Among them are Mme. Lambert, Marie Van Houtte, Mme. de Vatry, Emperor of Russia, Tabor, Duchess de Brabant, Mme. Joseph Swartz, Marechal Niel, and others. I may also mention that Winnie Davis is making fine buds now.

In the way of annuals and other plants, we have in flower cannas, *Cassia cormybosa*, acasias, pansies, daisies, balsams, zinnias, violets, tagetes, calendulas, petunias, vincas, Roman hyacinths; sweet olive with its fragrant perfume and numerous other plants, such is azaleas and camellias.

During the past season I have noted a few things that are worth growing in summer. First comes cannas: Madame Crozy, J. C Vaughan, Chas. Henderson, Paul Marquant, Alphonse Bouvier and Capt. De Suzzoni.

Seedling dahlias seem to revel in this climate. I had some beautiful colors among the few I had planted and the enormous tubers they made during the season were wonderful. *Heliopsis Pitcherianus* is another fine summer plant both for garden display and cut flowers. For fall comes the chrysanthemum. As regards the numerous varieties, the trouble arises which shall we select so as to get the best results on a limited area of ground. I have carefully noted what kinds have done the best during the past season, they are W. G. Newitt, Geo. W. Childs, Golden Wedding, Mrs. Drexel, Pitcher & Manda, Eugene Dailledouze, Princess of Chrysanthemums, Zambesi, Mrs. S. Coleman, Emma Dorner, Harry Balsley, Roslyn, H. V. Hallock, Eda Prass, Achilles, Mrs. J. G. Ils, Laredo, Kioto, Inter-Ocean and The Queen. For cut flowers Flora Hill, Golden Wedding, Golden Gate, Mrs. Craige Lippincott. If a fair amount of attention be given them the most fastidious should be satisfied with this list. We have had one of the longest dry spells of weather that has been known in New Orleans, otherwise the weather is beautiful. Just fancy the thermometer running up to 90° and no lower than 50° for Christmas. C. R. P.

New Orleans.

BLACKBERRY LILY, FUNKIA, COREOPSIS, ETC.

I notice in GARDENING, page 36, October 15, 1894, the Chinese blackberry lily (*Belamcanda Chinensis*). We have in addition three varieties of similar growth and appearance, but with larger flowers. One has orange flowers, another bright pink, and the third pale yellow or creamy white—all dotted with purple, and followed with the blackberry like seed. They were sent to us as *Morea Japonica*. What are they? [When they come into bloom you should send samples of them to the Missouri Botanical Garden for identification.—ED.] They are very pretty and deserve some notice.

There is a very pretty blue funkia that blooms much later than the common blue, and is of much more delicate and slender growth. What is it? [*Funkia lancifolia*, probably. It has long narrow leaves, has bluish flowers, and is the latest blooming one we have.—ED.]

We have a native coreopsis growing along streams which I believe is *C. auriculata*. It blooms much more freely with us, and for a more extended period than the popular *C. lanceolata*, which also grows wild here. Our experience with *C. lanceolata* has not been encouraging. Yet it is a plant that is needed—till we get a better to fill its place. We have for trial "*C. l.* Harvest Moon."

Can you give me a suggestion as to the best and cheapest way of heating a very small greenhouse, only 10x20 feet, for a general assortment of plants? [The best is a base-burner hot water boiler, but it is not the cheapest at first. When we take into consideration the health of the plants, safety and cleanliness in its use, easiness to work, permanency, etc., we have no doubt it will be the cheapest in the end.—ED.] EDWARD TEAS.

Missouri.

JAPAN ANEMONE "WHIRLWIND."

This is a garden variety of the white flowered *Anemone Japonica*, that originated at Rochester, N. Y., some years ago and was "sent out" by Jam s Vicks' Sons. Cooper, Tabor & Co. of London distributed it in Europe two years ago. In the *Gardeners' Chronicle* of December 1, last is a pretty illustration of it engraved from a sketch made of some flowers and

ANEMONE WHIRLWIND.

leaves sent to the editor by Messrs. Barbier of Orleans, France. The editor says "The flowers are semi-double, and more than that some of the outermost sepals are more or less leafy in character, so that a collar of green more or less completely surrounds the semi-double white flowers. The plant is, we are told, as hardy and as free-flowering as the original form."

Apropos of the above we wrote to the Messrs. Vick, who have replied as follows, and send us the accompanying illustration. But this picture isn't as pretty as the one in the *Chronicle*.

This variety originated in this city in a bed of the white *Anemone Japonica* variety Honorine Jobert. Except in the flower, it is in appearance in other respects like the other plant. Height of plant, vigorous growth and free-blooming habit are all the same. The flowers, however, are more lasting both on the plant and in a cut state. [This is generally the case in double and semi-double flowers.—ED.]

They are from two and a half to three inches in diameter. In one respect especially the plant has an advantage over the plain white variety. It is hardier as has been proved here several times. In severe seasons the crowns of the white variety will get killed back if left uncovered, while "Whirlwind" under the same conditions is uninjured. We regard it as a valuable acquisition.

JAMES VICK'S SONS.
Rochester, N. Y., December 31, 1894.

THE YELLOW ZEPHYRANTHES.

Floral Home writes: "I got some bulbs of the yellow zephyranthes two years ago but I have not succeeded in blooming them. How shall I treat them?"

Under the name of *Z. sulphurea* we also got some of these bulbs, and they bloomed beautifully with us out of doors in summer. The catalogue description is: "This rare variety grows taller than the others, and has large, beautiful flowers of a clear, brilliant sulphur yellow." This represents its behavior here exactly. We lift them in fall, cut the tops off and save the bulbs dry in a moderately warm (say 50°) cellar, and plant them out when the ground is mellow about the end of April. It is a lovely flower and very distinct. Be careful of it, for the stock is very scarce, and the supply from Mexico is apparently limited.

Roses.

HOW I PROTECT MY ROSES IN WINTER.

Noticing an inquiry in GARDENING, page 102, about La France as a hardy rose, I send you my plan of protecting roses in winter. But first let me say that I have a La France rose planted ten years ago where a farmer had his wood pile for probably thirty years, and bark and wood had decayed and formed a rich black soil over a heavy clay loam. The soil was deeply dug, mixed and pulverized and the rose planted, and for years it has been a thing of beauty. Go out on a fine morning just after sunrise, and see a dozen choice roses on this bush; you will then know why Scott wrote "The rose is fairest when 'tis bathed in dew." I have other La France roses that flower well, but I think none that produces such magnificent flowers as this one.

I have no set time for covering my roses, but wait till it begins to freeze pretty hard, then I take a one horse wagon with dump boards, because they lay flat, and drive to the side of a fence when the grass has not been cut or pastured for years and the sod is thick, tough, and will not break in handling, and with a sharp spade cut sods about ten by fourteen inches and about three and a half inches thick. When I have covered the dump boards with one layer of sods, I drive to the roses. An assistant takes hold of a bush, brings the shoots all close together and gently bends them to the ground and I lay a sod on them to keep them down. I then place a sod on each side, being careful to cover the root, and then one on the top, and unless the bush is a large one, it is done.

It looks a light covering and the bush is not pressed to the ground either, but arches up from four to six inches. Of course the air gets in, but judging by past experience it is sufficient. This is nothing new, I have done it for years; and if I have ever lost a rose by winter killing it is so long ago that I have forgotten it. W.

Wisconsin.

ROSES FOR SUMMER EFFECTS.

On one side of my front walk I planted three dozen Hermosa roses, on the other three dozen Madame Pierre Guillot. Both were great successes—Guillot being much admired. Result, second summer, Hermosa was not near so good, it had too much old wood, and Guillot was nearly all winter killed. These roses had good care in well trenched soil, and Hermosa was pruned back pretty severely. Please name some good roses for such effect as I am striving for, solid color and steady bloom, as I want one or two other beds. What do you think of Madame Plantier, for one? C. M. C.

Washington, D. C.

Hermosa may have been pruned too close. In my experience we prefer shortening strong young growth and cutting out very old wood—no severe pruning. As the beds in which the roses were grown were well prepared it is likely that Guillot made a late soft unripened growth and would necessarily suffer. When wood is thoroughly ripened, nearly or quite all our tea roses properly protected, can be carried safely through our Washington winters; I have carried through by well protecting our most delicate roses.

Mme. Plantier as hardy is useful north but cannot be recommended for this latitude. [Madame Plantier is the best all-round hardy white rose we have at Dosoris, it is the one we can go to with a bushel basket every day for nearly two weeks, but then it stops absolutely for a year—not one late summer or autumn bud ever appears on it. But it isn't a refined appearing rose at all.—ED.] True it is quite hardy and pretty when in bloom which is in our hot weather, but it lasts but a short time. When the beautiful teas can be so easily grown it should give place to them. I name a few distinct good bedding teas: Empress Augusta Victoria, white blended with cream; Maman Cochet, Mermet and yellow; Marion Dingee, carmine; Bridesmaid, pink; Golden Gate, golden yellow; L' Ideal, gold streaked red; Marie Guillot white tinged with yellow; Mme. M. Van Houtte, pale yellow, tinted with rose; Papa Gontier, bright rose-red; Etoile de Lyon, deep yellow. JOHN SAUL.

I AM much pleased with GARDENING. I have no trouble finding out what I want to know through its columns. May it prosper. H. A. B.

St. Louis, Dec. 16, '94.

Chrysanthemums.

CHRYSANTHEMUMS—CULTURE IN POTS.

For many amateurs whose space is limited, this is the most satisfactory way to grow them, as it admits of greater variety and to be used for different purposes. For decorating rooms in the dwelling house few plants are better adapted than a nicely grown natural plant in full bloom. With very little care they last in bloom for some weeks.

Start in March with a nice young plant say from a 2-inch pot. As soon as it is ready for a shift pot it into a 4-inch pot, using fresh, clean, loamy soil with but very little manure in it, the object being to get the plant to make short, sturdy growth. Water carefully when first potted and when it needs water only, as overwatering is very detrimental to the plant, at this stage. Keep all insects cleared off by fumigating, or syringing, and give as much air as is reasonable on all favorable days, maintaining a night temperature of about 50°.

As soon as the plant begins to make new growth after this shift, pinch the top out at about six or seven inches from the base, which will cause several shoots to break out from the sides; these are necessary to form the plant. When this sized pot is well filled with roots shift the plant into a 6-inch pot, using the same kind of soil, and grow on in the same way, and as the shoots lengthen out put a few small stakes into the side of the pot and gradually draw the shoots outwards, tying them to the stakes. By the middle or end of May the plant should have its last shift into an 8 or 9-inch pot, using this time very rich soil, two parts good fresh loam (rather heavy is the best) and one part well-decomposed manure broken up fine, and well mixed before using. In potting this time, as in each shift, be sure and drain the pots well by placing one large piece of broken pot over the hole, and several smaller pieces over that, press the soil firmly and do not bury the balls any deeper than they were in the previous potting. After this, place the plants back in greenhouse for about eight or ten days, just long enough to get the roots fairly started in the new soil. Then with a shovel or spade make a trench anywhere in the garden where it is fully exposed to the sun and not near trees,—but if it is somewhat sheltered from the strong west and north winds so much the better—five or six inches deep, and level in the bottom, in which place any old board eight or ten inches wide, on this board stand the plants about fifteen or eighteen inches apart, then place three or four inches of ashes around the bottom of each pot to keep earth worms away, and over this place any old hay or dry litter sufficient to nearly cover the outside of the pots up to the rim. Give them water as required, and if any of the shoots are growing much stronger than others top them so as to induce uniform growth as nearly as possible. From this on they will need very little attention except to give them water when needed and keep all weeds pulled up as soon as they appear.

During this time the branches may need a little support, just enough to prevent their getting broken by rough winds. If ten or twelve nice even shoots are allowed to grow from the main stem it will be ample to make a nice plant. All others should be broken off as soon as they appear. These are to be kept growing steadily till they show buds, then it will have to be decided whether a few fine flowers are wanted or a larger number of less size. If the former are wanted leave only the center, or first bud that shows on each shoot and pick out all the rest as soon as large enough to do so. If more flowers are wanted then pick out the first crown bud and allow three or four of the side buds to develop; this makes the most show. As soon as any indications of frost appear lift the plants up and place them in a greenhouse or in some airy place where they can be protected from frost and the flowers will develop very fast. When they begin to show color they can be taken into the dwelling rooms or any place needed so long as they get clear daylight.

It will increase the size of the flowers considerably if as soon as disbudded the plants get some weak liquid manure once a week, but be sure you do not give it to them too strong or when the plants are still wet enough; better let the plants be a little on the dry side before giving stimulants in any form. If really fine exhibition flowers are preferred they can be had by taking a cutting rooted in May and grow it on slowly as advised for the bush plant, but do not put it into a larger pot than 6-inch. Keep the plant trained to one stem and disbud all except one center bud, this will give one very fine flower on each plant.

After all the bush plants are put inside nearly all the stakes ought to be removed, as the plant if grown as above and only the dwarf growing varieties are used it will be virtually self supporting and be very much more graceful and attractive than if a lumber yard or its contents are piled up endway around the plant. Such trained plants are simply hideous, ungainly, and cannot ever be called beautiful. JOHN N. MAY.

Summit, N. J.

The Greenhouse.

FLOWERS THE FLORISTS GROW AND MAKE MONEY OF.

"EASTER SUNDAY will be late this year" said Mr. Purdue, a progressive and prosperous florist of East Orange, N. J., to me the other day, and florists will have to regulate their forcing operations accordingly. "These Bermuda Easter lilies were potted about the 25th of August, and kept back; they will get one more shift out of these 5½-inch pots into 7-inch; as soon as they fill their pots with roots, then we will plunge them in sphagnum moss, give them plenty of liquid manure, heat, and moisture, and force everything that is in them out of them, and then throw the bulbs away. I rarely get fewer than seven blooms from a bulb, and very often ten to twelve. Of course the plants grow high and ungainly, but we cut them off at the desired height, and stuck the stems into damp moss and the flowers keep nearly as long as on the plant, anyhow they keep long enough for Easter decoration, and that is our purpose. Some florists have them in bloom before Christmas. We are keeping these warmer now and gradually increasing the temperature and moisture."

SWAINSONA GALEGIFOLIA ALBA, a pea flowering shrub, though not new, is most useful as a florist's flower for cutting; planted in the bench it gives a continuous succession of sprays of purest white flowers.

HYDRANGEAS that are in cold frames will need to be taken into gentle heat about January 10 for Easter decoration. It takes ninety days before Easter, when Easter is early to force, the hydrangea and get the best results from it. As the season advances, and it is nearer a plant's natural time for flowering, it will take less time to force.

DEUTZIA GRACILIS.—Mr. John Farrell says, from his experience, it takes five and one-half weeks before Easter Sunday when it is in March, to force *Deutzia gracilis*.

THE BEST PAYING FLOWERS.—Mr. Purdue tells me the plants that pay him best are, first, carnations, second, violets, third, roses; then the Easter Harrisii lilies, hydrangeas at Easter, "cold storage" lily of the valley in before Christmas, and stevia. Chrysanthemums pay him only indirectly, by utilizing the benches in summer—a dull time of the season, and by attracting crowds of people to his store in November. He says poinsettias don't pay him at all.

AZALEAS should be brought from the cold houses in which they have been kept till now, and gradually given more heat as the buds swell, and as the flowers are wanted. A good way to ruin your azaleas is to force them year after year, without giving them any rest. When they are brought in from outside, in the fall, they should be placed in cold houses or pits without any fire heat, except sufficient to keep out severe frosts. The temperature of the house we have them in goes down to 32° some nights. Don't force them too quickly; the longer the growing season is the better it is for the plants, unless you want to throw them out when you are through with them, as one would an Easter lily.

Orange, N. J. WM. FITZWILLIAM.

FROZEN WINDOW PLANTS.

F. S. A., Hammond, Ind., writes: "The icy breath from an open window passed over my window plants, stiffening the leaves of many of them. Those of the geraniums and fuchsias wilted and crisped, necessitating cutting them off; the stems are uninjured. 1. How can I restore them to their former luxuriance in as short time as possible? 2. Will this slight freeze affect the bloom of freesias, the flower stalk not yet having appeared? 3. How shall I treat a small palm that seems tired of life?"

1. Cut off the frozen, wilted or deadened parts, keep the plants a little drier than before, and cooler rather than warmer, always of course avoiding frost. Don't rush them into fresh growth with the view of quickly regaining their former fullness, but let them come along slowly at first till you find out how much injury they have sustained and cut them back to sound eyes or wood. If the roots are good they will soon show recuperative energy.

2. Probably not. Freesias stand considerable frost if the check is not very sudden or severe, but no matter how hardy a plant may be if it has been kept in a warm room and then suddenly exposed to frost it will suffer. If the foliage has escaped unhurt very likely the flower buds have too.

3. Throw it away. We might write a column telling you how to nurse it, but it would be the voice of ignorance or hypocrisy. A sick palm is a pretty sick plant, and something that cannot be recuperated in a month or two as one would a soft wooded plant like a geranium or a fuchsia. True, even sick palms both as window plants and greenhouse plants, may after a long time be restored to health, but the uncertainty is great.

CYCLAMEN CINERARIAS

CINERARIAS.

Among greenhouse plants I know of none so easily managed as this is, or that makes a more generous display when it is in bloom. As you will see by the accompanying illustration from the guide to the conservatories here, and which was engraved from a photograph taken last winter, we grow these plants very largely, almost enough to fill a whole greenhouse at a time, besides having plants for succession. This gives an opportunity to the tens of thousands of Pittsburg people who visit these conservatories to see cinerarias in all their floral glory. And unbounded is their expression of their admiration of such a show. Now, while these plants are among the gayest and most profuse of conservatory flowers they are also among the easiest to grow and most satisfactory of window plants.

We treat them as annuals, raising them afresh from seed every year. Their period of growth is short and we have them in finest bloom from the middle of January till March, and some earlier and others later by regulating a succession of plants.

Cinerarias are cool loving plants, they dislike hot outdoor weather, and too a hot greenhouse; at the same time they can not stand a breath of frost.

We sow the seed in pans in August in a shaded cold frame; a few weeks earlier for early flowers, and a few weeks later for late blossoms. When the little seedlings have two or three leaves we pot them off singly into 2½-inch pots. They are rapid thrifty growers, and should be kept cool and well up to the glass in a freely ventilated frame shaded from warm sunshine, and given rich soil and plenty of water. Under no circumstances let them get pot-bound. As soon as the little roots are well through the soil repot the plants into 4-inch pots, and when they are nicely rooted in these shift them into 6-inch pots. 6 or 7-inch pots are big enough for common sized useful plants, but if one wishes for big specimens he may keep on repotting his stock till he gets them into 8 or 10-inch ones, when they should make very large specimens.

The soil we use is a rich compost of rotted sod and old cow manure and a little sand. Of course before there is any danger of frost getting to the plants in the cold frames we remove them to low roofed cool greenhouses. Greenfly is the worst enemy the cineraria has got to contend with, but tobacco is a sovereign remedy for this parasite. When the plants are quite young take some fresh tobacco stems and chop them considerably finer than they are with an axe, then scatter them in the frame under the plants, and renew this every ten or fourteen days. Do the same when the plants are taken into the greenhouse, and the probabilities are when flowering time comes there won't be a greenfly on or about them. Should there be any insects on them, however, syringe the plants to wet their foliage all over, especially about the crown, then sprinkle them over with fresh tobacco dust. In a couple of days wash this off by the syringe and repeat the application, till every fly has been destroyed. A. W. BENNETT.

Superintendent of Parks.

Pittsburg, Pa., Jan. 7, '95.

VAN REAPER'S GLAZIERS' POINTS.—In wet and stormy weather when we cannot work out of doors there are lots of odd jobs we can do inside, and just now quite an important one is repairing and reglazing old hotbed sashes getting them ready for early spring. In glazing we use these points and find them vastly superior to the zinc points. It is simply a modification of the double pointed tack, but one that is a vast gain to us. W. F.

Orange, N. J.

CARNATIONS.

One of the finest vases of carnations we have ever seen is now upon our table. The flowers came from Mr. C. W. Ward, Queens, L. I.; there are over sixty of them, including pure white, pale and deep pink, scarlet and crimson colored ones, and every bloom is a perfect specimen of its kind. There is only one blossom to a stem. The stems are fourteen to twenty inches long, stout, stiff as a stake, and so full of fine foliage that no other green is needed with them. This bunch of flowers is twenty-four inches through, six feet around, and grades to fifteen inches high above the vase; every bloom is held erect, or with a slight droop on the strong stems. The flowers run from two and one-half to two and three-quarters inches in diameter, and every calyx is faultless.

Mr. Ward is a florist who makes a specialty of growing carnations for the New York market. He has immense ranges of new greenhouses filled with carnations alone, and a sight of them at this time of the year is a revelation in floriculture. The secrets of his success are brains, means and application; he has no hidden secrets of cultivation.

A CHOICE BOUQUET.—A dozen carnation flowers for a dollar and a half! He had just picked them for a Baltimore lady who wanted something choice, and she got it. The variety was Bridesmaid, a new and lovely pink, each bloom was over two and one-half inches in diameter, and every stem was sixteen or seventeen inches long, full of leaves and some side shoots, and besides the open blossoms there were half a dozen unopen buds with just as good stems as the open flowers

had. Really when we looked upon this beautiful bunch of flowers it was perfectly evident that a lady would far sooner have them than a hundred common flowers for the same money.

VARIETIES.—Mr. W. says: "Mme. Diaz Albertini, pink, is bringing me the best price, but Wm. Scott, also pink, is almost as good. In fact with most people the last is the best carnation. Daybreak, pale pink, is also fine. The new Bridesmaid is a lovely pink and most promising. Among white flowers we have nothing to equal Storm King, well maybe Michigan does; really, I hardly know which one I like the best. Lizzie McGowan is a great favorite because of its continuous cropping and fine flowers when well finished, but it hasn't got such stems or foliage as the other sorts mentioned carry. The Stuart, notwithstanding its great praise as a scarlet, and its exceptionally fine stems does not satisfy me fully. Portia is still one of the finest scarlets and healthiest of carnations, but the blossoms are too small. Among crimsons I expected much from Jacqueminot, but the plants rusted so badly I had to throw them out But here in Meteor we have a beauty. It is a fine flower of a dark glowing crimson hue, and the plants are perfectly clean and healthy, with fine stiff stems."

PLANTS FOR POTS.—Mr. W. is working on a set of dwarf varieties suitable for growing in pots, of which Winter Cheer is one of the best we now have. But his plants are of a different type, while the plants are very stocky and the flower stems less than a foot long, the blossoms are unusually large—we measured one that was three and three-quarters inches in diameter—but when very big they burst their calyx, and he is trying to hybridize them out of that defect.

SELECTION.—A wide awake florist is as particular about his stock as is the progressive farmer about his cattle. Every plant that shows an extra good point in the way of healthier growth, stiffer stems, bigger or finer, or more flowers, than the majority is marked with a stake to be propagated from for stock. And every plant that shows any inferiority in habit, health, or bloom is rooted out and thrown away as soon as its most advanced flowers are cut.

THE PLANTS are propagated from cuttings taken from the flower stems and outside shoots and never from the inside or underneath ones. He likes February struck plants for winter blooming, as they come in early and keep on late; but he has benches of stock in fine thrift raised from June struck cuttings. The young plants are planted out of doors in summer and lifted and planted on the benches in September.

SUPPORTING AND TYING.—A few years ago the florists used to stake their carnations, but they don't do it now, instead they take strips of ¾-inch mesh chicken wire netting, 15 or 18 inches wide, and as long as to reach across the bench, say four or four and one-half feet, and fold it over like an inverted V and place these between the rows of plants to keep the foliage and shoots off the ground and the branches upward; it also allows of a current of fresh air to run between the plants. Mr. Ward has discontinued the use of chicken netting for this purpose and instead uses now ½-inch mesh No. 20 galvanized wire lathing 15 inches wide. These are stout, stiff, strong and will last for years As this lathing as used by plasterers comes in pieces two feet wide Mr. Ward had his 15-inch size manufactured to order; it cost him three cents a square foot in lots of 20,000 square feet. To support the flower stems No. 20 or No. 16 galvanized wires were stretched lengthwise along and over the beds, thirteen inches above the ground and eight inches between the wires. At either end the wires were fastened to a cross bar made of gas pipe, and here and there along the beds they were stiffened by being fastened to light rods of wood. Run across the wires and fastened on to them, a foot apart, were strings of stout silkaline, a green, fine, thread-like cord now much used in tying plants

DISBUDDING AND STAKING.—Carnations that do not have long, stiff, leafy stems are good for nothing, and varieties that bear several flowers to a stem are disliked, the florist wants no more than one blossom to a stem and to give it the best opportunity for development he carefully removes every bud except the terminal one. And to further add to the perfection of his flowers Mr. W. is staking all his best blossoms. The stakes used are pieces of fence wire twenty to twenty-four inches long, one is set to each very promising flower, which is tied up at the top, thus tending to further stiffen the stem and allow the fuller development of the flower. Does it pay? we asked Mr. W. He replied: "A smart girl, at 75 cents a day, will tie up 1,500 carnations a day, and I get a dollar a hundred more for them in the market than I do for the others."

SUMMER CULTIVATION.—Mr. W. is convinced that the day is near when, if we want the best flowers, we shall grow our carnations all summer long in greenhouses just as florists do chrysanthemums nowadays, and with this end in view he is considering building new greenhouses with provision for more ventilation.

HIS GREENHOUSES are new, short span to the south, 20 feet wide by 144 feet long, and five of them are joined together in one block, ridge-and-furrow fashion, the space under the gutter of the furrow being open between the houses.

The glass is double thick, American made and in 24x16 inch panes, and it is all butted together, none of it is overlapped. No putty is used in bedding the glass. A string of hard wove cotton fish line is run along the bars, the glass edges rest on this and the cap of the sash bar being screwed down tight the whole is kept perfectly solid. Mr. Ward is eulogistic in its praise.

VENTILATION is at the top of the long or north slope, and opens at the ridge, also in the case of the two outside ranges, front ventilation is provided for.

THE BENCHES are four and five feet wide (but four feet is advised as being the best) and raised above ground a little over two feet to the bottom or just two feet six inches from the ground level to the top of the bench. The posts are of locust, and the rest of the lumber is hemlock that, before using, had been soaked in crude oil, said to be a preservative of wood. Mr. W. advises to have the posts two feet apart, then cross pieces of scantling, and the bottom boards laid on lengthwise. All the boards should be 1½ inches thick plank, in 5 inch wide strips; lay these leaving ¾ inches between every one for drainage. Then spread some rough manure, straw, or moss over the boards in the bottom to prevent the soil from falling through. But spent hops that had been left outside for a summer to get the bitterness washed out of them are recommended as being as good as any of them. The trough of the bench or bed should be five inches deep inside measurement.

THE SOIL used is two parts in bulk of rotted sod loam and one part of well rotted manure; it is placed on the benches four inches deep over one inch of drainage.

STIMULANTS.—In the beds in hearty growth and where the soil is well permeated with roots, a sprinkling of old chicken manure composted with earth was strewn over the ground under the plants, and some of the beds were topdressed lightly with well rotted sheep manure. The chicken manure is preferred, but it must be used sparingly.

TEMPERATURE.—A low temperature, free ventilation and good light are some of the secrets of good health, large flowers and big stems. "Our minimum temperature at night is 50°, and maximum 55°; in the day time of course it may run up 10° higher."

SHADE.—Mr. W. is severely opposed to shade for carnations, and is mourning two mistakes in his greenhouse, well, we may say three. First, he would make the short span a little higher and the long slope a little steeper; secondly, for carnations he would always build disconnected greenhouses; and thirdly, connecting all the greenhouses to a shed at one end is a mistake because of the shade on them caused by the shed in winter. But he would build parallel ranges and intersect them in the middle by a glass corridor leading to a shed at the far end. This idea is shown in GARDENING, page 253, April 15 last, when we illustrated the rose houses of F. R. Pierson Co. of Scarborough, N. Y.

DISEASES.—The carnation rust is the dreaded disease, and as a preventive the plants are sprayed about once a fortnight with Bordeaux mixture.

NEW CARNATIONS.—It is generally conceded that we must keep up our stock of carnations by raising new varieties from seed. Securing the seeds as obtained in the ordinary way is not considered advisable or profitable, every flower set to seed has been jealously selected and carefully hand fertilized, and its pedigree taken. Seedlings bloom when a year old but it is not well to decide upon the merits of a flower on its first blossoms; the best are saved and propagated from for a second year's blooming; if they stand the test they are tried a third and even fourth year before a decision is reached as to their introduction to commerce, if not discard them. It isn't an uncommon thing for a first-year seedling carnation to show good habit and flowers and the second season to turn out indifferently. There is a prejudice against all varieties having petals inclined to incurve, they look wilted, those having reflexed petals are always preferred.

Orchids.

VANDA COERULEA.

This is the blue flowered orchid. We have a few other orchids having bluish flowers but they are not very showy, hence seldom cultivated. This vanda however is a perfect beauty, easy to grow, and certain to bloom, usually coming into flower between October and New Years, and lasting some weeks in blossom. We are apt to look upon vandas generally as being quite tropical orchids, but this species is an exception; it is indigenous to the Khasya Hills, East Indies, where it is found in the forests at an attitude of 2,500 to 4,000 feet, hence we treat it as an orchid needing intermediate warmth.

VANDA CŒRULEA

The specimen shown in the accompanying illustration belongs to Mr. Wm. Barr, Llewellyn Park, Orange, N. J., and is now (December 26) in full bloom. It has eleven flower spikes and one hundred and sixteen lovely pale blue blossoms. Last year it had eight flower spikes.

We grow it in a pot in a compost consisting of sphagnum moss, charcoal and potsherds, no peat. It is given a liberal supply of water in spring and summer when it is in active growth, less as it approaches and comes into bloom, and when it has done blooming we keep it only slightly moist till it shows signs of starting into fresh growth, when we again gradually increase the supply.

The temperature of the greenhouse in which we grow it is 55° at night, allowing a rise to 65° or 70° in the day time; even a little higher with direct sunshine.

Orange, N. J. WM. FITZWILLIAM.

I HAVE nothing but commendation for the paper, which I have—contrary to my custom—brought to the notice of many of my friends, as a favor to them.

New York. G. T. L.

The Vegetable Garden.

THE VEGETABLE GARDEN.

Look over the stored vegetables to see that they are keeping all right and that frost doesn't get to them. If they are too warm the carrots, oyster plant, turnips, beets, etc., are apt to sprout, and as sprouting destroys their good flavor, rub off the sprouts. Whenever you find the roots beginning to sprout turn over and unsprout the whole binful. This turning over of the whole lot is a safeguard against rotting too, for if one or two roots start to rot very soon every one touching them is apt to rot, turning and sorting stops this in time. See that no drip gets into the vegetable bins, as it is sure to soon start sprouting and rotting in the roots. The temperature of the cellar where the roots are stored should be the same as for apples or potatoes, as low as possible without admitting frost. Over dryness isn't good; it causes shrivelling. But if the roots are dry and wilting a little don't wet them, simply put them together in small heaps and place a layer of moist earth or sand over them and keep them cool.

If you have carrots, beets or turnips buried in pits out of doors be sure to have a covering over them thick enough to exclude frost; common earth is best for this, but if the ground is hard and you cannot get it, a load or two of manure or litter spread thickly on top of the earth covering will be of great assistance.

BRUSSELS SPROUTS.—What a fine thing these are in winter. We don't bury them outdoors as we do cabbage, we plant them up close together, and heads up in a pit or shed where we can get at them to pick whenever we wish to. Look over them now and pick off all decaying leaves on them, and if any of them show a wilty appearance pour some water on the ground their roots are in, but don't wet them overhead. Sometimes they get badly infested with greenfly. We mustn't use kerosene emulsion or any poisonous insecticide to destroy the insects, for the kerosene would give a bad taste to the sprouts and the poisons are dangerous to the consumers. But make a strong brine and spray the plants with it; this will destroy the insects and won't hurt the sprouts. Or syringe them with hot water (at a temperature of 130°).

CABBAGES buried out of doors are apt to keep all right up till February anyway, then they begin to get tasteless.

CELERY in ridges outside if well covered from rain and frost is apt to keep well enough till into February. But look out for field mice, they are apt to gather wherever there is straw covering, and if they once get into a ridge of celery you should lift out the lot till you catch the mouse or mice, else they will make sad havoc among the heads. At this time of year it is well to lift and bring in a month's supply at a time, in doing this save the roots to the plants. Have a deep box like an old shoe box, put a little moist earth or sand in the bottom, then set in the celery, heads up and close together and the roots in the moist earth; set it in a cool place in the cellar and take out what you want as it is needed.

WE HAVE LETTUCES, SPINACH AND PARSLEY in cold frames. All we can do with them is keep the frames well covered up in severe weather, and in mild weather uncover and open them. Even in sharp frosty weather, in bright sunny forenoons it is well to remove the covering from the glass to admit light and heat, then cover up early in the afternoon to keep in the heat. In mild fine weather uncover the frames altogether and remove all decaying and damping plants and leaves and with a little scarifying tool scratch the surface of the ground over to dry it. In the event of severe frosty weather the plants in cold frames are often apt to get frozen stiff, while in this condition if the are frames are uncovered suddenly and warm sunshine admitted to the glass the plants—lettuces in particular—are apt to get destroyed, while the plants are frozen stiff admit light sparingly, it might even be well to tilt up the sashes a little at the back without uncovering them. In the south hotbeds are now in order but in the north it is too soon to start them. Hotbeds in January are something we have ceased to touch because of the great labor entailed in caring for them and their uncertainty should the weather prove snowy or continuously cold.

LETTUCE, ONIONS, TOMATOES, CAULIFLOWERS. It is time to sow some of these for an early start, and if it is too soon to

start a hotbed, we had better sow these in the greenhouse or a warm window. Lettuces sown now, and planted into a hotbed in February should be fit to cut in March. Onions sown now and removed to a hotbed in February or early March and to a cold frame in April, should be fit for transplanting out of doors about the middle of April, and then next July or August think of the difference in size between these and what you sow in the open ground in April! Tomatoes sown now, if you have a pit or greenhouse to grow them in later on should begin to bear ripe fruit in May. But if you haven't such a place February is soon enough to start them. Cauliflower may be sown in the house or greenhouse, and pricked off into other flats as soon as it is is well up to save it from getting spindly; about the end of February or first of March remove it to a gentle hotbed; prick it off or pot it singly early in March, and have it ready for planting out early in April.

VARIETIES.—Improved Boston Market or Big Boston is a fine lettuce for early use. Get Prizetaker onion, it grows to a very large size and speedily. Lorillard has proved the best tomato with us for this early work. Although not the earliest variety we like it better than the other sorts either dwarf or running for this purpose. Snowball or Extra Early Erfurt is a fine cauliflower to sow at this time'ot year.

HOW TO SOW THE SEEDS.—Get little wooden flat boxes say 12x16 inches by 3 inches deep, use light common earth, sow broadcast on these, cover quite lightly, press the surface smooth and slightly firm with a piece of board, and water gently. Then place near the light in a greenhouse or warm window but shade the boxes with a piece of coarse paper till the seedlings appear, when the shading should be removed. In the case of the tomatoes, a small pot will be big enough to sow in, as we don't want many plants so early as this. As soon as the seedlings in the boxes are well up prepare other boxes of the same size and fill with the same sort of soil or some a little stronger, pressing it firm, and into this prick off the seedlings. Be very watchful lest the seedlings get weak and spindling.

CUCUMBERS.—If you have got a warm greenhouse and room you can have these all winter. The Telegraph is as good a variety as any. Keep them clean from the very start. Don't let mealy bugs or red spider get a start on them, and to be on the safe side in this respect keep all other greenhouse plants away from them, syringe them once a day at least and twice every fine day—early in the forenoon and early in the afternoon. Leaf disease is very troublesome to cucumbers in the greenhouse; guard against it rather than try to cure it. This is done by spraying the plants every week with Bordeaux mixture, and do the same thing to tomato plants for the same purpose, for tomatoes take leaf disease very badly. If you once let this disease get headway, even Bordeaux mixture is an uncertain remedy. Take preventive rather than curative measures.

Cucumber vines are apt to grow quite long, but don't let them; nip the points out of them when they are three or four joints long to cause them to branch; also nip the points out of the branch shoots for the same purpose. Cucumber flowers are of two sexes, male and female; the female one grows at the end of a long thin young cucumber, the male flower doesn't have this. If you let them alone probably the cucumbers won't develop into full sized fruit, but rather wither up when they are as thick as a lead pencil. If you hand fertilize them however, everyone should become a swollen perfect fruit. This should be done in the forenoon when both flowers are dry and open but fresh. A little later on insects enough will come into the greenhouse to effect the same purpose. Under fair conditions cucumbers take two months between sowing and first picking. Or cucumbers can be raised in pots now to plant out in hotbeds early in March. We don't like trusting them out before that time. In this case they take longer to come into bearing.

RHUBARB.—If you have plenty of roots, this is very nice now and easily forced It needs to get a good freezing early to make it start kindly so soon as this. You can grow it easily wherever you can get a temperature of 60° or 65°, under the stages of a greenhouse, in a mushroom cellar, or in a roomy hotbed is a good place for it. Plant the roots thickly, cover them over with earth up to the crowns, and water them freely

ASPARAGUS can be forced in the same way as rhubarb and quite as easily. After the first of March, considering how cheap and fine we can get the southern outdoor product in the market, forcing it at home doesn't pay.

Miscellaneous.

THE OLD GARDENS OF ST. LOUIS.

(From a speech made by Mr. Leonard Matthews, of St. Louis, at the recent Mass banquet in that city, and for which we are indebted to the courtesy of Professor William Trelease of the Missouri Botanical Garden.)

Who of you remember Dr. Bernard Farrar's garden at the corner of 6th and St. Charles streets where the Wear-Boogher Building now stands? Ask your mothers or grandmothers about it, if you have no recollections of it, and it will revive fragrant memories. And that of Mrs. Perry on the site of the Equitable Building. Run up with me to Mr. L. A. Benoist's on 8th and Pine streets, and to John S. Thompson's at 9th and Locust where our Public Library now stands, or the old Berthold Mansion 5th and Pine; and to Theo. Labeaume's on 9th near Washington. I am talking of thirty or forty years ago, gentlemen, and yet the memory of the freshness, the beauty, the sweetness, the home-likeness of the scenes I recall, makes me a boy again. I can almost smell the lilacs, the roses, the lemon verbena, the honeysuckle, and nothing so impresses me with the "ravages of time" as the thought of the disappearance of these garden spots of old St. Louis. And now let me recall briefly some of the outlying ones. I have in mind Lafayette avenue, south of the park, and westward, where thirty-three years ago (a common) I captained a base ball team "the Cyclone." Well do I remember the old gardens of Ed. Bredell, Archibald Gamble, David Nicholson, S. D. Barlow, John J. Roe, Jas. B. Eads, Albert Todd, Jas. S. Thomas, Geo. Hoyle and Wm. N. Switzer. Traces of these may yet be found by the curious. Lots 100 to 600 feet front and several hundred feet in depth. I can not forebear contrasting these homes in my mind to the palaces in Westmoreland, Portland and Vandeventer Places, with their little grass plots and geometrical flower bed—needless to say to the great disadvantage of the latter places. And before leaving this I must remind you of the houses of the old French settlers along Second, Third and Fourth streets, south of Market, frame and log houses covered with vines, with their modest window gardens bespeaking the kindly refined inmates.

And now go farther south with me and see the places of Henry T. Blow and Capt. Fink, and Chas. P. Choutau, and Luther M. Kennett, and Thornton T. Grimsly, and Messrs. Russell, Barnard, Soulard, Price, D'Oench, Smith, Alexander, Lawrason Riggs. Thirty to forty years ago a welcome, and a bunch of sweet flowers, awaited every visitor to these homes. Homes did I say? Yes! These old gardens were an integral part of the home—just as much so as the house that sheltered the inmates.

And now a long run up to the north end of town along the old Bellefontaine Road. I vividly recall the gardens of Beverly Allen, Jas. E. Yeatman, Col. O'Fallon, Chas. Anderson, Samuel Gaty, Isaac H. Sturgeon, Adolphus Meier and Jos. Branch. And in the western part of the old city were the gardens and elegant greenhouses of Judge Wm. C. Carr, the Glasgows, John S. McCune, Edw. Bates, Dan Bell, Hamilton R. Gamble, A. M. Waterman and Jas. Harrison.

Enumeration of the various old gardens must suffice, without specific description. A general description I may give you. These gardens were meant to live in. The flowers were meant to pluck. There were trees and hedges and shrubbery to give privacy, and there were vines, far more sightly than even hydraulic pressed brick, magnolias, holly, spruce, pines, June and hybrid perpetual roses, snow balls, lilacs, mock oranges, four o'clocks, marigolds, nasturtiums, pansies, peonies, pinks, tulips, flags—all these abounded. And the gardens were roomy, the plants hardy and the arrangement natural. The backs of these gardens were just as attractive as the fronts. Ride in on the suburban road and cast your eye to either side as you go from Taylor to Sarah (as I am compelled to do every morning). Ash barrels, tin cans, old boots, garbage boxes and filth are found in profusion. And reflect if this be the condition of the lots where they are open to inspection, what must be the condition along the alleys of our city which are never visited by any but scavengers. Oh for an ordinance requiring people to put their names and numbers on their back gates!

Gentlemen, that wise, good old citizen, in whose memory we are gathered here to-night, had a deep motive in providing for this annual banquet. Perhaps none of us can quite fathom it. But a contrast between the old and the new in the matter of our homes, in the matter of our gardens, may serve as a hint of what Henry Shaw, of blessed memory, had in mind. I hope to live to see the full fruitage of his hopes, as I believe them to have been (and as I think our chairman (Mr. Trelease) conceives them to have been) a population in St. Louis educated in the matter of flowers, a City of Homes, sweetened and refined by influences like those of the old gardens of St. Louis.

In closing I may be pardoned if I venture a practical suggestion in furtherance of this consummation. The people, I am persuaded, would turn their city lots into gardens, if they but knew how to go about it, in an economical and intelligent manner. Why should not plots be laid out in Forest Park, to be under the charge of the Park Commissioners or in the Missouri Botanical Gardens, for the purpose of practically educating the people in this? In one plant nothing but hardy hybrid perpetual roses, in another

half hardy roses, etc., in another hardy annuals, in another half hardy annuals, in another hardy perennials, in another hardy shrubbery, showing the various heights and habits of bushes all arranged with a view to proper succession. Then allow city florists to lay out lots twenty-five, fifty, one hundred feet front, one acre and five acre plots, and there show their ideals—how a city or country lot should be laid out and planted. All lots or plots should be plainly marked, stating "this lot contains nothing but hardy perennials," "this lot has nothing but half hardy perennials requiring slight winter protection," and so on, so that the public would have object lessons and know what they wanted without having to try discouraging experiments. In this way I think Mr. Shaw's intentions would be furthered, our parks could be made educational institutions, a great impetus would be given towards "Old Gardens" with their happy homes, industrious children and generous rivalry among neighbors; and when this became known throughout the country, this portion of the park would be sought out by all visitors, and florists would be overrun with orders for flowers.

KEEPING SEEDS.

I am now putting away seeds in cocoa cans, partly because they are safe from the depredations of mice and it is also a convenient method of storing, but aside from this I have some theoretical reason for thinking they will keep longer in this way if properly dried before putting into the boxes. I am satisfied, in comparing my experience in keeping peas and beans for seed here, with my recollections of keeping them in Massachusetts, that they will retain their vitality there much longer than here and I attribute it to drying out more in our comparatively warm and dry climate. Enclosing in air tight boxes and keeping in a cool place would prevent this, and in theory I cannot see that it will injure them. I kept some centrosema seed in a cocoa box in a cool and rather dry cellar last winter and found it to swell in hot water a great deal more promptly than seed kept in paper bags has done in previous years. It did not come up very well, but the weather was extremely unfavorable and under the circumstances I had no reason to expect it. Can you or your correspondents throw any light upon this subject?

Hammonton, N. J. WM. F. BASSETT.

Will some of our readers please give us their experience in keeping seeds in air tight boxes? About the centrosema seed not germinating evenly, it is a curious fact that several other of our native leguminous plants behave in the same way. Take *Thermopsis Caroliniana* for instance, we have gathered seed from one plant, sown it, and found that while some germinated in a few weeks, others took months and some did not appear till the next spring.

ASHES—JOURNAL.

G. C., N. J., asks: (1) what is the best thing to do with coal and wood ashes? (2) Where he can get the *Journal of Horticulture*, and the price, (3) and encloses some small bits of leaves for name.

1. We use coal ashes for mending roads or paths, making beds of to stand pot plants on out of doors in summer, or in frames or the greenhouse at any time, to mix with clay soil, to bank around cold frames in winter, to pack in the holes around fence posts in clay land where gravel isn't handy, and many other jobs. Florists sometimes sift them to mix with their potting soil for stock roses, but never for shipping roses. The roots of plants take to them kindly as you may have noticed in the case of pot plants rooting through when set on beds of ashes. Wood ashes are particularly valuable for use on lawns, or in the fruit garden—for strawberry and bush fruits, also for fruit trees of all kinds.

2. The *Journal of Horticulture* is a weekly paper published in London, price 6 cents a copy, which is $3.12 a year exclusive of postage. You can order it through this office.

3. We can not name plants from so little material. Send at least one full, perfect leaf of each kind, and a blossom if practicable.

HOW TO MAKE A CONCRETE WALK.

Mark out the place where the walk is intended to be; if near or along side of a building mark the upper side first if straight, with a line; if curved with the point of a pick or other suitable instrument. Next pick a little trench on the inside of the line about four or five inches deep, and dig out with a spade. Take spruce boards 1x4 inches and put them into the trench and have the outside corner correspond with the line. For curved parts, the boards will have to be sawed to make them bend. These incisions should be at equal distances apart, or the board will not bend even. How far apart depends on the shape of the curve, from one to six or seven inches. Cut almost through the board and try the cuts by bending the board to see whether it bends to satisfaction. After the board is deposited, pack the earth around it, firming it well with the feet, letting the earth come to the top of the board. If not perfectly straight, straighten out with a crowbar. Now drive stakes down at the joints and middle of the boards to nail the latter to. Always drive the stakes at the outside, never at the inside, for the frost will heave up the boards and with them the stakes, and a piece of your walk too if the stakes are driven at the insides. After the upper board is all satisfactory, put down the other side in the same manner, giving about one-half inch pitch to the foot; that is if for instance your walk is to be four feet wide the side farthest away from the building should be two inches lower to carry off all water. If no building is near, both sides should be even high of course. If the walk runs on level ground or nearly so elevate the middle a trifle. When both boards are down, the ground between them must be graded. Remove all earth to the depth of about three inches or more if you like, but it is not necessary, and might be less. This space is to be filled with small cobble stones from the size of a walnut to a small hen's egg; which have previously been tarred. Fill to the top of the boards, then with a heavy stone roller roll them down to a smooth surface. Many places cannot be reached with the roller. These are treated with a maul, generally a block of timber with a handle on top and side and heavy iron shoe at bottom which projects a little on one side to get under doorsteps with. The bed for your walk is now finished, and there should be about one inch space between the top of the boards and the gravel bed, and the latter be perfectly even.

All this is to give shape to the walk, but the most important part, the preparing of the concrete, is to follow. The requisites are: Good live sand such as builders use, but not beach sand, coal tar, asphalt, coal ashes, a large iron box about 4x8 feet 10 inches high, two iron kettles, square mouthed shovels, a dipper, and iron rake. The pan (heater) must be so arranged that a large wood fire can be built under it and also the kettles. Fill the pan with sand and mix it one-fourth of its bulk with coal ashes, both well screened. Fill one kettle with tar and put a quantity of asphalt, well broken up, into the other. Kindle a good fire under the latter as it takes a good while to melt the asphalt. Have a good fire under the heater and keep shovelling the sand over back and forth until it is hot and dry. When this is the case, your tar hot and liquid and the asphalt melted, put molten asphalt into the tar, in proportion to about one part of the former to ten of the latter. The asphalt tends to hasten the hardening of the walk, and the quantity may be increased in very hot weather. Stir the mixture well with the dipper until it is well mixed. Next shovel the sand away from one end of your pan, but leave some at the bottom. Pour tar into this hollow about a dipper full (mine holds two gallons) shovel hot sand on this, more tar and more sand and so on. How much tar to put with the sand cannot be well explained, it must be learned by experience, and much depends on the quality of the sand; some requires more some less. I should say an average quantity would be a gallon of tar to a cubic foot of sand. While putting in the tar don't let any go to the bottom of the pan as it might burn, that is while shovelling the sand over the tar, don't go quite to the bottom. When you think there is tar enough with the sand, draw the fire from under the pan, for now you must shovel clear to the bottom. Let two men shovel one end clear, then begin turning the mixture towards this clear end while another man is raking it. When all is well mixed throw out of the pan in a heap, still keeping up raking the pile while throwing it out. If not tar enough is used, your walk will not last, if too much it will keep soft for too long a time, but will make up for this in lasting quality after it once becomes hard.

The next operation is to move the mixture to the stone bed of your walk. Apply it about two inches thick. Have your stone roller ready, let it be clean and wet, scatter a little sand and push the roller back and forth, never stopping in one place twice. Scatter more sand to keep it from sticking to roller and shoe soles. When all is rolled lengthwise trim off the edges with a trowel. Then hammer down the edge with the maul so that everything will be flush with the curb-boards. Now roll crosswise, give the edges a final trimming with the trowel, and your walk is finished.

As I mentioned in preparing the stone-bed there are places which the rollers cannot reach, these must be treated with the maul. If everything is done right your walk will harden in a short time and should last for years. If however, the mixing was at fault, if it begins to crumble or the broom begins to pick up small particles, get your tar kettle ready without delay. Heat a quantity of tar and wash your walk all over with it, using an old broom for a brush. Allow the tar to flow in and sand it well. (The sand should be fine Coney Island beach sand, whenever used on the surface). This will give a nice smooth surface. If this tarring is repeated once in two or three years a walk thus made will last forever. C.

GARDENING

WILLIAM FALCONER, Editor.

PUBLISHED THE 1ST AND 15TH OF EACH MONTH

— BY —

THE GARDENING COMPANY,

Monon Building, CHICAGO.

Subscription Price, $2.00 a Year—24 Numbers. Advertising rates on application.

Entered at Chicago postoffice as second-class matter.

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All communications relating to subscriptions, advertisements and other business matters should be addressed to The Gardening Company, Monon Building, Chicago, and all matters pertaining to the editorial department of the paper should be addressed to the Editor of GARDENING, Glen Cove, N. Y.

GARDENING is gotten up for its readers and in their interest, and it behooves you, one and all, to make it interesting. If it does not exactly suit your case, please write and tell us what you want. It is our desire to help you.

ASK ANY QUESTIONS you please about plants, flowers, fruits, vegetables or other practical gardening matters. We will take pleasure in answering them.

SEND US NOTES of your experience in gardening in any line; tell us of your successes that others may be enlightened and encouraged, and of your failures, perhaps we can help you.

SEND US PHOTOGRAPHS OR SKETCHES of your flowers, gardens, greenhouses, fruits, vegetables, or horticultural appliances that we may have them engraved for GARDENING.

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THE UP YOUR EVERGREENS so that snow cannot spread and injure them. This applies to yews, retinospora, arborvitæ and any others growing in a bush rather than upright single stemmed form like a spruce or a fir tree. You may do this with a piece of lath cord or marline, tying up the main branches from the inside that a weight of snow cannot break them down or take a long piece of the same material or hay rope and run it around on the outside of the bushes from the bottom to the top, tying in all the branches from the outside. Of course, in this last named way it is necessary to run one cord in the opposite direction, knotting it to the other here and there to prevent it from slipping.

THE ARTICLE "How to make a Concrete walk" page 137, differs from most other articles you will find written on this subject, in being a plain, matter-of-fact, detailed statement of how to do the work.

CALIFORNIA'S SUPERIOR MUSHROOMS.—J. E. W., Kensington, Cal., writes: I am a mushroom grower for San Francisco. California mushrooms are superior to English or French. Imported spawn sold in San Francisco isn't worth planting. I make my own spawn, using it both in virgin and brick form.

SEND FOR EVERY CATALOGUE you may find mentioned in GARDENING; we believe they are free to you for the asking. Without having a good selection of new catalogues one can not very well keep posted to date in matter of flowers, fruits, vegetables and other plants. Study them carefully, there is much that is interesting and profitable to be gleaned from their pages.

THE HORTICULTURAL TRADE JOURNAL is the name of a new 16-page monthly "trade" paper whose first number appeared this month. It is gotten up by the Mayflower Publishing Co., Floral Park, N. Y. The paper before us is really spicy and interesting, but not technical. If the powers behind that paper would keep on telling us all they know it would continue spicy.

A BEGONIA ALMANACK. The *Gardeners' Magazine* issued a handsome sheet almanack with its Christmas number, the decoration being the flowers of tuberous rooted begonias, in their natural colors. The flowers are large and fine, but to be frank they are nothing like as beautiful as the blossoms we saw last September at Mr. Griffin's place at Westbury Station, Long Island. And they don't show any of the frilled and fringed varieties Mr G. has got.

TO STOP POINSETTIAS FROM WILTING WHEN CUT.—Place the stems to a depth of about an inch in boiling water for about a couple of minutes. This will prevent the sap from flowing out. By this method the foliage will remain perfectly fresh for a week or more and the bracts much longer. It is a good plan to cut the stems to the desired length at first. If by chance the stems are afterwards shortened do not omit placing in hot water again.—*London Garden.*

GOOD PUTTY.—If you want good putty, make it yourself, using linseed oil and whiting. You can buy putty ready made for much less than you can buy the oil and whiting. This being so, what is the putty made of? If you have much to do with hotbed sashes and repairing them you must have a pretty good idea of how the putty lasts. Mr. Ernst Asmus of Hoboken, N. J., one of the largest and most prosperous greenhouse florists in the country, has his greenhouse glass all bedded in putty, but he told us the other day he makes every bit of the putty he uses, he couldn't afford to use store putty.

DR. HEXAMER, editor of the *American Agriculturist*, is going to California to attend the biennial meeting of the American Pomological Society which is to be held at Sacramento this month. But before going he wants to make sure that he shall not lose a number of GARDENING. Under date of January 7 he writes: "With our immense paper mail here every little while I lose a number of GARDENING. I am very anxious to keep the entire set and as particularly during my absence some may get astray will you not please have it sent to my private address?" Knowing the man and that he is living in a sea of literature we regard this as a very high compliment to GARDENING.

IN THE DEATH OF MRS. W. W. ASTOR horticulture has lost an eminent patron. A few years ago Mr. and Mrs. Astor removed from America and settled in England, where they purchased the Duke of Westminster's magnificent estate of Cliveden in Berkshire. The gardens there were among the finest and most extensive in Europe, especially the outdoor flower gardening, both artificial and naturalized. But this was not enough for Mr. and Mrs. Astor. They called to their aid a gardener who has done more to purify gardening, and make it lovelier, sweeter, more natural and emobbing than any other man who ever lived. He doesn't plant his flowers in beds or borders but spreads them broadcast among the grass like narcissus in an alpine meadow, bloodroot and anemones by the bubbling brook, golden corydalis, saxifrages and gentians among the rocks. He preserves nature and beautifies it, and this is true gardening.

A NOVELTY in flowers, fruits or vegetables may be a new species, or a new variety, or it may be an improved selection of an already popular sort; and in many cases it is something that was in cultivation long ago, but only in a limited way. By booming an "old" but little known plant as a novelty is the only way to make it popular quickly; if it is a good thing it will sell better the second year than it did the first, and still more of it will be sold the third year, and so on. A poor novelty soon dies, no matter how superlative have been the adjectives and bright the paint used in introducing it. And this is the case in Europe as well as in America. It sometimes happens that the dealers themselves have to drop a sterling novelty, simply because they can not get up a stock of it quick enough or cheap enough to supply the demand created by advertising it prominently, at paying rates. After the bulk of the catalogues have been sent out we may have something to say about a lot of the novelties, several of which we have had experience with.

THE FLOOD OF CATALOGUES is a little later this year than usual, but we can not expect them in quantity till after the middle of this month. We are always glad to see them and look through them carefully. We enjoy the lists of novelties as much as any one, and they are the first things in the books we look for. That other people do the same is shown in the effort made by the nurserymen, florists and seedsmen to get up a good and attractive list of them. It is rather a long-cared trait to ridicule or condemn novelties we know nothing about. It is perfectly natural that the dealer should portray his flowers and plants in the most attractive way, just as the dry goods man does his wares, and select the finest and most perfect samples for illustration, the same as the cattle raiser and farmer show us pictures of model animals, and never of scrub stock, except for comparison's sake, to give us a chance to see the difference between perfection and inferiority. But did we ever see a tomato so perfect, an apple so big, a plant so loaded with flowers, a field so full of melons, or as many potatoes to a drill as some catalogues show? Well, exaggeration creeps into some lists, but others again are strictly true, and if we should be deceived by preposterous statements and outrageous pictures our common sense must be at a discount. The readers of GARDENING are too intelligent and discriminating to need any advice in this matter. For our main stock of flower

and vegetable seeds we should depend on tried, standard sorts; a new kind, because of its scarcity and high price, is simply grown on probation. Besides, all varieties are not equally well suited to all places, some melons that do well in New Jersey have not done well on Long Island; some potatoes that are superior in Ohio are not first-class with us at Dosoris, and so on. In the way of flower seeds this difference is less marked, so too it is in the way of decorative shrubs. Strawberries are a pointed example of local choice.

MODERN GREENHOUSE CONSTRUCTION is what Hitchings & Co. 233 Mercer street, New York, call their catalogue of greenhouse designs. If you have got a greenhouse, are intending to build a greenhouse, or are interested in greenhouses in any way send for this book. It contains many splendidly executed designs of modern greenhouses that the firm have built, and it also shows many details of construction. The arrangement of the heating pipes in the greenhouses, the staging, and manner of ventilating are shown so lucidly that a child can understand them. And even if we don't want to get a builder to put up a greenhouse for us, this little book is very suggestive indeed, should we wish to build a home-made greenhouse or pit for ourselves.

A GRAPE MANUAL AND CATALOGUE is published by Bush & Son & Meissner, Bushberg, Mo. It contains 200 pages and is entirely devoted to grapes. It costs 50 cents. This is no price list or common trade catalogue, but an invaluable book on grapes. The fourth edition of it has just come to hand, and we place it alongside of Fuller's Grape Culturist on our shelf of reference books. It tells us all about the American native grapes and their classification, and all about cultivated varieties. The practical cultivation of the grape is dealt with very thoroughly. The chapters on grafting, insects, injurious fungi, and spraying are full, very interesting, and generously illustrated. Wine making is treated as only those who write from experience can handle it. And aside from the general description of the many varieties there is a capital index to them as well as a table of the originators of our good grapes.

BLANCHE BURPEE SWEET PEA.

This is a new white flowered sweet pea raised by Mr. Eckford, the specialist in this line, and it is to be sold this year for the first time. We have known of this pea for a couple of years; it is said to eclipse everything in the way of white sweet peas ever before seen. The plant is a profuse bloomer and the flowers are pure white, very large, of perfect form and have not got the notch peculiar to most peas on their upper petal.

AN ASPARAGUS BED.

A. B. H. has a space 56 feet long by 10 feet wide prepared and dug for an asparagus bed, and he asks us: "How many plants will it require? How far apart should they be set, and how deep should the crowns be covered? What variety should I use? How should the walks be placed? It doesn't seem to me that by planting the rows the regulation 3 feet apart the bed would be of good shape, if the rows run lengthwise. Another year I could widen the space two to three feet."

As you can add 2 to 3 feet in width another year begin now as if the bed were 12 feet wide instead of 10, and run the rows 3 feet apart and lengthwise in the bed. You don't need any walks. Throw out the trenches nine inches deep, strew a 2-inch layer of well rotted manure in the bottom and a little earth over it; on this set the plants, eighteen inches apart, and so that the top of the plant in light soil shall be five to six inches lower than the surface of the ground. Cover the crowns only two inches deep to begin with; in hoeing and cleaning in summer the trench will get filled up two or three inches more, the next year it may be filled up level. In heavy land four to five inches over the crowns may be enough. Why plant so deep? You want the green asparagus that grows above ground and not the white that is blanched under the soil. True, and that's what you'll get. In a year or two the crowns will increase in size and rise considerably. Being under the ground a little gives one an opportunity to fork the surface of the bed lightly without injuring the eyes of the crowns, it is also a protection against the effects of freezing and thawing in winter and excessive heat and drouth in summer. "The best variety" is puzzling. If you have to buy the plants get them from some one you have confidence in, taking what he has got, for, *sub rosa*, there is more difference in the names than in the varieties. Colossal is the standby yet. Most of our large market growers save their seed from selected plants on their own farm. Get 150 plants. You may have a dozen left over, but there will probably be that number of poor ones in the lot that had better be discarded.

The first summer we grow spinach, lettuces, early cauliflower, or snap beans on the ridges between the rows in our asparagus beds.

MUSHROOMS.

I send you a species of mushroom which I would like your opinion on. Is it a mushroom? It grew in cluster of about 40 to 50 in bunch under a partly opened shed in a soil of cinder and ground where horses have stood at times.

I am raising the mushrooms from both English and French spawn, and have 13 beds in my cellar now all spawned. The cellar is heated by steam, temperature 70°. Should the temperature of the bed after spawning be kept 90° for the ten to twelve days after being planted by covering, etc., when the temperature goes down, or should we let it alone after planting at 90°, until we put the clay on in ten days later. Should the temperature of the cellar be kept at 60° after planting the spawn or should it be kept higher, say 70° to 75° directly after planting and then reduce the room to 60° when mushrooms appear? A. P. M.

Wilksbarre, Pa.

The mushroom, or whatever it was, was packed with cotton and paper in a small paper box and sent by mail. When it reached us the box (as all paper boxes are apt to be) had been squeezed out of shape in the mails, and the contents were a crushed, black, putrid, indistinguishable mass.

At this time of year before the mushrooms appear, provided the beds are covered with hay, straw or litter and the atmosphere is fairly moist a temperature of 70° may be all right, but let it fall gradually to 58° or 60° as soon as there are signs of mushrooms. While it is well to cover the beds after spawning to keep up warmth and encourage the spawn to run according to circumstances, to arrest condensed moisture, also to prevent overdrying be very careful not to overcover, and don't try to keep up 90° if it takes much covering, for such a high temperature is apt to dry out the manure in the bed, and that means ruin the crop.

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SELECT CHRYSANTHEMUMS.

The following list of chrysanthemums is suitable for pot culture, either for bush plants or single stemmed plants for individual blooms, and covers the season from the earliest to the latest. The time of coming into flower is in the order they are placed, each color separate.

I have avoided naming any of the new varieties which are to be introduced in 1895 because they have not yet been sufficiently tried for pot culture to enable me to give a fair opinion upon them. But the varieties given are all good and have proven to be well suited for growing in pots, and they embrace all the shades of color in each class so that no mistake can be made in selecting any or all of them. Some of the earliest in each class will often bloom in perfection in the open air if frost does not come too early; indeed we bloomed many of them here the past season in the open ground without giving them any protection whatever.

YELLOW: Yellow Queen, Mrs. J. G. Whilldin, Minerva, A. H. Fewkes, Major Bonnaffon, Fascination, soft lemon; Gloriana, canary; H. L. Sunderbruch, Golden Wedding, W. H. Lincoln, E. Dailledouze and Dr. Covert.

PINK: Portia, Ada Spaulding, Lady Playfair, Iora, Mrs. Geo. A. Magee, Eda Prass, Maud Dean, Gaspard Rozain, Achilles, Mrs. Walter Cutting, Oriana, Tilian.

WHITE: Miss Kate Brown, Alba Venus, Ivory, Mayflower (extra good), Marie Louise, Mutual Friend, Mrs. H. McK. Twombly, Mrs. John H. Starin, Miss F. Thorley (Hardy type), L'Enfant des Deux Mondes; Domination, Mrs. J. Jones, Flora Hill.

OTHER COLORS: H. F. Spaulding, apricot; Robert Owen, bronze, extra good; Inter Ocean, white, shaded pink; Mrs. Gordon Dexter, anemone, extra; Ada Strickland, bronze, anemone; Geo. W. Childs, anemone; Mrs. A. J Drexel, plum color; Tuxedo, amber; Kedondo, deep bronze; Summit, dahlia form; and Pitcher & Manda, white and yellow.

In addition to the above, all of which are good for bench culture as well as for growing in pots the following are really fine late varieties, but only suitable for growing planted out on benches in the greenhouse: Mrs. J. Geo. Ils, very large white; Oriana, soft pink, very beautiful flower; Charlotte, very fine late white, incurved Japanese; Challenge, large yellow, very fine when in perfection; and Mrs. Bruce Findlay, blush pink, very large bold flower. Niveus still maintains its reputation as a very fine white which can be kept quite late. Prairie Rose is another very beautiful shade of pink and quite distinct. Pres. W. R. Smith is also a very beautiful pink which can be kept well. For a very late yellow there is nothing better than Dr. Covert. This is the variety that was so largely used by the admirers of Princeton College at the last Princeton-Yale football game. It is very large and altogether a fine variety, and Flora Hill, for a late white, constitutes the cream of the very late varieties.

Summit, N. J. JOHN N. MAY.

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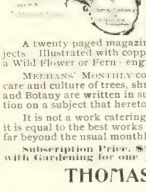

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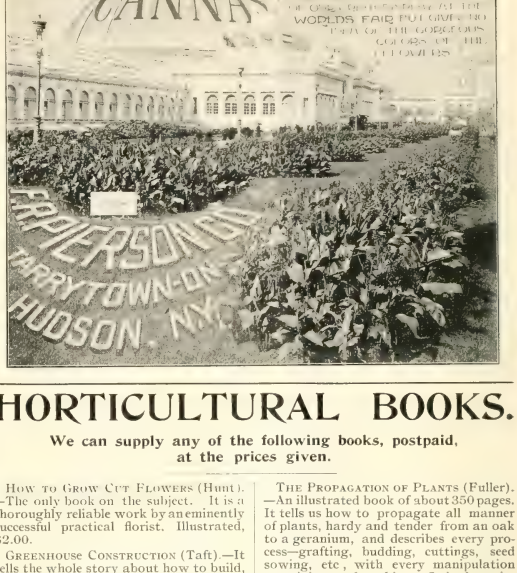

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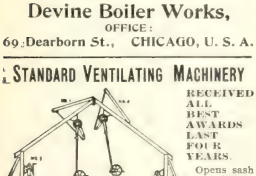

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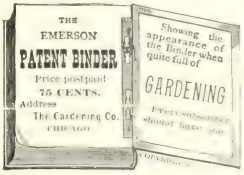

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GARDENING

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A GLEN COVE CHURCH

Landscape Gardening.

THE EPISCOPAL CHURCH, GLEN COVE, N. Y.

The neighborhood of Glen Cove is a broken, hilly, well-wooded, and beautiful country. The village proper runs through a glen between somewhat steep hills, bordering a creek which has been dammed back for mill power purposes till it looks like a small lake. There are several churches in the village and all except the M. E. one are situated on hill tops or quite high ground. Two in particular, the Presbyterian and Episcopal, are very beautiful churches, the latter especially so. Indeed the Episcopal church as it appears from the street is the prettiest little church building we know of. The wealth of vines about the front is particularly attractive, and are noticed and admired by everybody. Even the risers of the front steps are covered with the vines, the steps being bare. Although the church is on high ground the road in gentle winding grades supported by well sodded terraces is easily travelled, and the grass being kept mown in summer and the roads clean and in good repair, the church and its grounds are the pride of the village, and their refining influence is felt throughout the whole community. The vines used are mostly Veitchi's ampelopsis, one of the cleanest, easiest to grow and most manageable of all vines. Our illustration is engraved from a photograph taken last fall.

Compare this beautiful little country church with many of the bleak, naked, shiver-inspiring church buildings we find throughout the country. Here you see the effect of a few vines appropriately used and taste in laying out and keeping the grounds. There is religion in this. The poorest church in the country can go and do likewise. If the outside of the church is ugly, ill-kempt, dishevelled, and repugnant, what can we expect within? We must be consistent. The vines and trees and beautiful grounds about the church are a living sermon to everyone who passeth by, even in the heart of the atheist who cannot be coaxed to come inside of a church the good seed is sown and will germinate and grow about his own home.

Our highly respected townsman General James B. Pearsall, a pillar of the church

and one of our subscribers, planned and laid out these beautiful grounds. And in the following he tells us something about the church itself:

"St. Paul's Church, Glen Cove, was built in 1884, upon the site of the old church, erected in 1833. Henry M. Congdon, architect, of New York City, drew the plan under the advice and supervision of the late Archdeacon John Caverly Middleton, D.D., S.T.D., then Rector of the Parish. The style of architecture is a combination of Queen Anne and Colonial without, but within it is purely Colonial. The church is cruciform in shape, 115 feet long, 100 feet wide at the transepts, and 100 feet front, over all. The chancel is 26 by 35 feet with additional space for the large organ on the right, and vestry and choir rooms on the left. The church will seat about 400, and is thoroughly equipped in every particular, and independently of the organ by Rosevelt, the beautiful baptistery erected as a memorial to Mrs. Olin, by her father, the late S. L. M. Barlow, the exquisite reredos in oak, which was fashioned, carved and the panels painted by the distinguished artist and donor, the Rev. Johannes Oertel, the altar, rood screen, and other memorials, such as windows, and furniture for chancel—cost about 15,000 dollars. The building is enclosed with a wainscoting of pine and thence to the plates with California redwood shingles, and slate upon the roof. The interior is wainscoted, trimmed, floored and furnished throughout with Indiana oak.

"The church lot of about two acres, has a frontage of 150 feet on Main street, and commands a fine view of the village and notwithstanding the base of the church stands 40 feet above the street, 170 feet distant, the winding driveways and walks are so effectively planned with beautiful terraces and slopes, that the approach to the very steps of the church is made easy for those on foot, or in vehicles."

January 21, 1895.

TO PROTECT THE LAKE SHORE BLUFF.

Will you kindly advise me through GARDENING how to protect our lake shore bluff from the action of the frosts and rains. I want to cover it with a growth of trees, shrubs, and grasses that will hold the soil and prevent wasting.

Benton Harbor, Mich. O. O. W.

If your correspondent had given the height of the bluff, the slope of the land, and the quality of the soil his queries could be answered understandingly, and it would give me pleasure to answer it fully. Let me give you a description of our Lake Michigan bluffs, on which I have resided over fifty years.

They rest on a tenacious blue clay subsoil impervious to water, with a liberal covering of rich loam on which stood forests principally of oak intermixed with walnut, hickories, ash, hard maple, red maple and all the species adapted to this climate. The slopes of these bluffs were not inclined to wash until the timber was cut off. Bluffs forty to fifty feet high, were covered on the steep slopes with white pines, arbor vitæs, etc., of large sizes, which had apparently stood in that condition for ages, with many steep ravines well clothed with timber on their sides carrying the surplus water to the lake. The cutting off of the timber and more or less cultivation of the land apparently obstructed the natural channels that carried the surplus water so that in wet seasons the rains finding a passage through the surface soil, ran on the surface of the subsoil until they reached the edge of the bluff, and then rushed down, carrying trees, roots and all, *a landslide*. The frost working on the bare bank during winter caused them to break in further when they thawed out in spring, but even where entirely neglected nature has kept steadily at work and brought them to a proper slope and recovered them with vegetation,

If your correspondent's land is wasting away by frosts he must prevent the water from finding a channel on the edge of the bluff. If the land is wet he can cut strong willow cuttings, sharp them at the point and with a maul drive them in deep. If the object is only to hold the bank without reference to ornament, willows and European alders will hold it as well as anything and the cost will be trifling. If the land is not very wet the best grass he can have is June grass, *Poa pratensis*, called blue grass in Kentucky, and June grass in the west. If he is using it as a part of his ornamental grounds, he should plant osier willows, called basket willow, and plant dwarf arbor vitæs, and mountain pines, and strong rooting shrubs, lilacs, etc. ROBERT DOUGLAS.

Waukegan, Ill.

As to grasses, plant *Ammophila arundinacea*, *Calamagrostis longifolia*, *Agropyrum repens*. Plant also *Salix longifolia* and red cedar, and in fact anything of any size that is now abundant in those places. Begin near the water's edge where damp, and keep planting every year or two to the leeward. W. J. BEAL.

Michigan Agricultural College.

GARDENING POSSIBILITIES OF A FIFTY FOOT LOT.

The statement is so often made by owners of small places that they would have a fine garden if they only had room, that I am constrained to send to GARDENING the plan of a city lot fifty by one hundred and twenty feet, belonging to a flower-loving friend. On this lot he grows upwards of one hundred and fifty species and varieties of plants and bulbs, and some things in liberal quantities, such as cannas, narcissi, tulips and gladioli. Although there is such a variety of flowers grown there is no appearance of over crowding, and the effect produced is pleasing and in good taste. The following is a summary of shrubs and plants grown, and well grown too, in spite of the shade of his neighbors' houses and the depredations of their dogs and children.

Three varieties of magnolias, one of Japan maples, one of snowballs, three of lilies, four of clematis, two of honeysuckles, two of wistarias, three of ampelopsis, one of dolichos, one of bignonia, thirty-three of herbaceous plants and alpines, thirty-six of hardy roses, thirty-five of narcissi, twenty of tulips, including a collection of one hundred named varieties of late flowering sorts, thirty of gladioli, and pretty much all of the better sorts of the new French cannas lately introduced. I wonder how many large gardens there are that can show so interesting a collection? Not many I think, and in my city I know there is not a score. So it would seem that a fine garden is not so much a question of size, but more of the desire and enthusiasm of the owner.

Another plea for a poor garden or no garden is lack of time, but the owner of this garden is a busy and successful business man, yet finds time to do all of the work in his garden, and seems to think that he is better able to take care of his business on account of it.

My friend says he is getting tired of the French cannas, despite their extremely showy flowers, and speaks of planting the borders about his front porch with some graceful hardy plants or perhaps tall nasturtiums instead. I quite agree with him in this. The cannas are stiff and ungraceful, and where a picturesque effect is desired they do not meet the requirement. Tall nasturtiums, which are easily and cheaply grown from seed, have more good qualities than most plants, no matter how expensive or highly praised. When allowed to grow naturally and to cover considerable of the ground in front of the support on which they climb, they make an effect beautiful and picturesque in the extreme. This is well shown by the illustration on page 101 of Vol. 1 of GARDENING.

EXPLANATION OF PLAN.

1. 1. 1. 1. Locust saplings eight inches in diameter with branches shortened to five or six inches for clothes line posts. These are covered with the following vines: *Clematis paniculata*, trumpet creeper, Hall's honeysuckle, one on each, and golden honeysuckle and Jackman's clematis together on one.
2. *Magnolia conspicua*.
3. Hardy roses with a narrow border of narcissi and tulips. Gladioli are planted among roses every spring.
4. Herbaceous plants with 9-inch border of narcissi and tulips, which are carpeted with moss pink (*Phlox subulata*.)
5. *Magnolia Soulangeana*.
6. Japan snowball.
7. *Aristolochia sipho* to cover kitchen porch.
8. Hall's honeysuckle to cover kitchen porch.
9. Auratum, rubrum and album lilies.
10. Tall growing common cannas to screen back garden.
11. Rockery planted with shade-loving plants, such as hardy ferns, trilliums, cypripediums, tiarella, etc This space is extremely shady on account of proximity of neighbor's house, making it impossible to grow grass or any plant requiring sun light.
12. Border of French cannas.
13. Border of French cannas.
14. Blood-leaved Japan maple.
15. *Magnolia stellata*.
16. Four Carolina poplars, to be cut out as soon as pin oaks are of a good size. These Carolina poplars, which have been planted only four years and two years old when planted, are now eight inches in diameter one foot from the ground. They have no permanent value, but where a quick growing tree is needed for temporary effect they are useful.
17. Pin oaks.
18. California privet hedge.

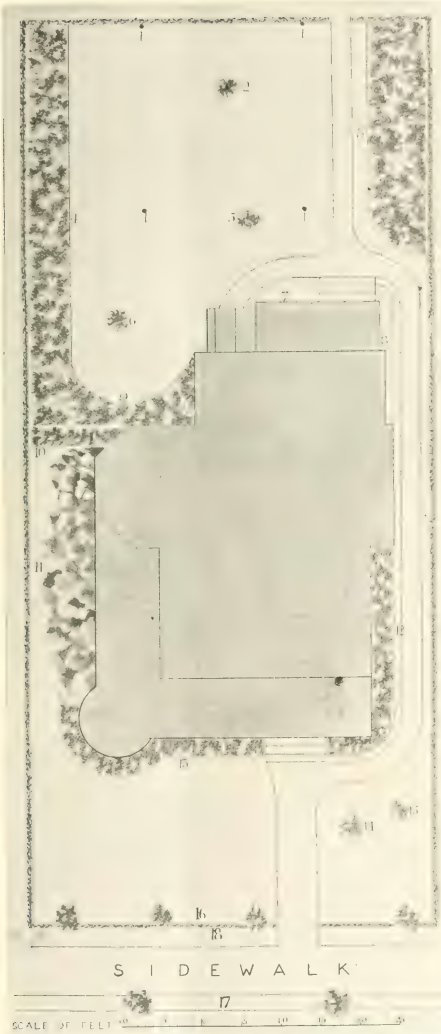
In addition to the planting shown on the plan Hall's honeysuckle is planted to screen the front porch, except the circular part, where three varieties of clematis are planted. *Ampelopsis Veitchii* is planted to cover all walls, which are of brick, and a Chinese wistaria is planted at one corner of the house and trained up a single wire and carried along the eaves of the house. J. WILKINSON ELLIOTT.

Pittsburg, Pa.

The Flower Garden.

PROPAGATING PLANTS FROM CUTTINGS.

So early as this striking plants from cuttings should be done in the greenhouse or windows; a hotbed is too damp, time



PLAN FOR A FIFTY-FOOT LOT

enough for it next month. Although cuttings before they are rooted must be shaded, they should be on a bench or shelf near the glass, and never away on a back shelf or under the shade of other plants. But they need not be in a south facing sunny aspect.

As a rule young plants are more sturdy and thrifty than old ones and freer from insects, especially in the case of bedding plants. February and March are excellent months for striking cuttings. A cutting is a tip piece of young wood (old wood too in some cases), of two or three joints in length. As a rule most anything will root in a night temperature of 60° to 65°. This is considered pretty warm for feverfew, gaura, phloxes, and hardy stock generally, right for all common greenhouse stock, and a little cool for alternantheras, but our experience has been that most everything strikes well in it, and if we take proper care of the plants after they are rooted there is no enervation even in hardy plants.

In the case of geraniums, fuchsias, heliotrope, salvia, stevia, dahlia, marguerites, double petunias, and some others the cutting should be cut off clean just under a joint, and the two lower leaves removed. Coleus, iresine and alternanthera should be cut just above a joint and inserted without removing any of the leaves, but if the leaves are large or long they had better be cropped shorter so that they will take up less room in the cutting bed. Carnation cuttings are young shoots or stem sprouts, three or four joints long and plucked out of their sockets; they need no cutting or dressing with a knife whatever unless it be to shorten the leaves a little and even this isn't necessary. If the young shoots of lemon verbena when they are about two inches long are cut off with a little of the heel where they are attached to the old wood retained most every one will strike, but tips cut under a joint without the heel are more tedious. Abutilon, plumbago and hibiscus cuttings treated in the same way strike quicker and with greater certainty than when the cuttings are made in the ordinary way. Although bouvardias are generally grown as winter blooming greenhouse plants they will also bloom beautifully out of doors in late summer. After the plants have had a good rest shake them out of their pots, and cut up their stout roots into pieces one to two inches long and lay these in a pot or shallow box, in light soil and covered over half a inch deep, then put a little swamp moss on top to keep it equally moist. In due time the roots will throw up little plants which should be lifted out and potted off singly. You can get up a good stock of *Anemone Japonica* in the same way. In the case of double white feverfew, ageratum and lobelia we tear the plants apart into as many pieces as possible, strip off the rougher leaves, and insert the pieces as cuttings without any touch of the knife. If stock is short though instead of tearing the crown apart we cut over the shoots and use them and let the crown remain to bear another crop of sprouts. Amateurs generally divide their old dahlia stools into two, three, or more pieces and plant these, for it is generally conceded that old undivided roots don't display the same vitality that younger plants do. Our florists who make a specialty of dahlias go still further and claim that they get cleaner and healthier plants from new plants made every year from young wood cuttings. Old plants taken into the greenhouse now soon throw up sprouts and cuttings made of these root readily. If you have any fine hardy phloxes or pentstemons you wish to increase your stock of, lift the roots, plant them in a box, and bring them into the greenhouse, they will soon start to grow, and the young shoots can be taken for cuttings, they strike easily.

Cuttings may be struck (rooted) in

pots, pans or boxes filled with sand or sandy soil, or on a bench filled with the same. The sand should be moist and packed quite firm. Then take a smooth wooden peg a little thicker than the stem of the cutting and dibble a hole into the sand as deep as you wish to plant the cutting. Now set in the cutting, and with the peg pack the soil or sand quite firmly against it, but not so as to bruise it. The cutting should be set so firm that by catching a leaf you cannot pull it out of the ground without breaking the leaf. When the cuttings are put in water them gently from a rose so as to settle the sand about them. Until they are rooted they should be shaded from sunshine and protected from draughts or currents of air be they warm or cold. But don't keep them so close that a mould will attack them and rot them off. The moment you notice this mould pull up all the cuttings in that patch where it is, remove the sand and replace with fresh, clean the mould off of the cuttings even if you wash them and reinsert them. Look over the cuttings every day and remove every bit of decaying leaf you may observe. And as soon as the cuttings are rooted pot them off or box them off. The greatest danger with a cutting is just before it should begin to root. Geraniums are an exception, they dislike to be coddled.

RAISING PLANTS FROM SEED.

We find February the best month in the year to raise seedlings of many plants, especially of slow growing kinds like begonias; and we also like to get up all the perennials now we can, so as to get the work done; even if it does seem early we can transfer the seedlings to a cold frame about the end of March or first of April. To raise seedlings now we want a temperature of 60° at night for most anything, and 65° or 70° for tender plants. We want light earth and pots or shallow boxes to sow in, a place near the glass to set the seed pots up on, but we must shade them from sunshine and shelter them from draughts till the seedlings appear. Then the little seedlings should be pricked off into other pots, pans or boxes, kept near the light and have more sunshine.

AGERATUM.—Get Imperial dwarf blue. When the seedlings are up and pricked off select those of the best and most even habit and discard the rest. Very easily raised from seed.

ALYSSUM SAXATILE COMPACTUM is a yellow flowered perennial, easily raised, and when pricked off in March can be set in a frame the end of the month.

ANTIRRHINUM or snapdragon if sown early blooms fine the first summer; later sowings give a succession of flowers.

ST. BRIGID ANEMONES don't all come up at once, but by sowing early and pricking them off as they appear we get lots of them before the end of next month.

AUBRETIA PURPUREA and others are evergreen carpeting hardy perennials that we like to sow early because as the plants are so very small we can take better care of them than we could later on.

BEGONIAS.—Tuberous begonias should be sown early, in fact Mr. Griffin of Westbury always sows them in January. So too should the Vernon and other fibrous-rooted sorts.

CARNATIONS.—Sow Marguerite and all other sorts as early as possible, so that we may get them into bloom early.

CENTAUREA CANDIDISSIMA and *C. gymnocarpa* should be sown early in order to get fair sized even plants for the flower garden in May.

CELOSIAS AND COCKSCOMBS.—It is better to sow now and give them a little time to harden up in May than to delay later and then hurry the plants. They are a little slow at first.

COBÆA grows very rapidly from seed, but after it is up we remove it to a moderately cool place, stake it and pinch it and when we set it out in May the plants are big and sturdy and make a show right off. But they are all right if not sown for a month yet.

CHINESE PINKS may be sown now to get them off of our hands, or delayed for a month. They all flower the first summer.

ECHEVERIA AND SEMPERVIVUM should be sown at once, for the seeds are very small and the seedlings grow slowly at first.

EUCALYPTUS is very easily raised from seed. By sowing now we can get plants two to three feet high to plant out in May, and these plants will grow to maybe ten or twelve feet high before next November.

FERDINANDIA AND WIGANDIA although they grow to be large robust plants are very tiny to begin with, hence the necessity of early sowing.

GAILLARDIAS.—Don't sow any of the annual ones yet, but the sooner one can get up the perennial kinds the earlier they will bloom. They all blossom the first summer.

GAURA LINDHEIMERI is the only one worth growing. It is easily gotten up from seed, and being almost hardy we can remove the plants to a frame in April.

GLOBE AMARANTHS are so slow growing at first that we always sow them in February. If you want something for a warm dry place in summer try these.

GREVILLEA ROBUSTA is very easily raised from seed. It is a big tree in its native country, but we grow it for its beauty as a small fern-leaved bush in the open garden in summer or as a decorative pot plant in winter. Sow it now and have plants six or ten inches high in May.

HELIOTROPE is easily raised from seed, but sometimes the plants are very rough and disappointing.

IMPATIENS SULTANI does well out of doors. We sow it in February and get four or five inch plants by May.

LAVENDER if sown early will often bloom the first year; if sown late it isn't likely to bloom, and the winter may kill it.

LOBELIA although so wee at first has great vitality. Sow early.

MIGNONETTE.—Sow some seeds of Machet, and when the seedlings appear pot them off singly into smallest pots and plant them out in the open garden in April and see how far ahead of the outdoor sowings you will get it.

MIMULUS, like lobelia, is wee to begin with but it makes great headway after it starts, and is in bloom in June.

NICOTIANA AFFINIS.—It is simply a case of the earlier sown the sooner the bloom.

PANSIES should be sown in August to get the best good of them, but early spring sowings bloom nicely from April or May through June.

POPPIES.—All annual kinds are sown out of doors as soon as the weather opens, but perennial sorts such as *nudicaule* we raise indoors and prick off into boxes, then out of doors in early spring. They bloom the first year from seed.

PENTSTEMONS.—The florists' varieties if raised early bloom nicely in summer; if raised late the hot weather overtakes the half grown plants and cripples them. They are not quite hardy.

PETUNIAS.—We like to raise the double ones early, but the common single ones are better delayed for a month yet. If you want something to bloom every day during the summer try striped petunias.

POLYANTHUSES are perennials, but we find they are healthier and better when treated as annuals. We sow the seed in February or March, box off the seedlings into good loam, and in due time plant them out in a north-facing cold frame over summer and in fall lift and plant them in a warm cold frame where they can bloom prettily in April and May.

PYRETHRUMS if sown early will bloom nicely the first year. The single varieties are very beautiful and charming as cut flowers.

TEN-WEEK STOCKS if sown now and kept potted or boxed on as they need it will be in good bloom Decoration Day. It is better to delay the main sowing, however, till March.

TORENIA FOURNIERI.—Sow it early. The plants are a little slow to begin with, then quite vigorous. It is perpetually in bloom from June till frost destroys it. The White Wings form is as easy to grow as the other and quite pretty.

VERBENAS.—By sowing now the plants will be in bloom in May. Many growers sow verbenas in January, but we prefer February.

VINCA should be sown early. Get the pure white, and the white with red eye varieties. They need heat. Although slow at first they grow quite freely as the days get warm.

While it may be convenient to raise a lot of plants from seed in February we shouldn't overdo the thing; never raise a plant more than you can take good care of. Young plants grow so quickly and take up so much room that our quarters soon get congested, and the plants suffer. If we were to raise China asters, salvia, balsams, single dahlias, candytuft, sweet scabios, zinnias and the like as soon as this we could not give them anything like the root room and top room they would need, and to deny them either would be to spoil them, spindle them and starve them, and render them an easy prey to red spider, and when they would be planted out they would never recover enough to be as good as younger and sturdier stock.

FLOWER GARDEN QUESTIONS.

An Ontario subscriber asks: 1. What will do as well for edging a bed of scarlet geraniums as candytuft, i. e., in white? Candytuft is fine while it lasts but is so soon over.

2. Is *Torenia Fournieri* a good annual for an edging or is it too tall?

3. My beds are on the northwest side of the house and are in a rather hot and dry situation, and water is not plentiful; the soil is rather heavy and inclined to cake. Can I expect any success with carnations there? I have succeeded well with asters and stocks early sown, but all annuals sown late, whether in the open ground or the house, and planted out have now been a failure for two seasons, especially mignonette. Give me some suggestions.

4. How about heliotrope? I want perfume as well as color if possible.

1. If from seed, dwarf sweet alyssum, white Drummond phlox, or white flowered vinca (*V. rosea* var. *alba*).

2. It is fine for edgings and not too tall. And the variety White Wings might answer as a border for your geranium bed.

THE JAPANESE BENTHAMIA (*Cornus Kousa*)

3. If you keep the ground well unfastened on the surface in summer or mulched between the plants with lawn mowings carnations should grow and bloom well enough there. If you dig the ground deep and fine, dwarf nasturtiums should do well in it; sow them early, they will last all summer.

4. Heliotrope should do well with you. Prepare the ground deep and fine; set out the plants about the end of May, mulch the ground with short manure or mowings.

LILIES IN POTS FOR SUMMER USE.

A subscriber asks for a list of these and how to grow them.

All lilies that can be grown in the open garden can be grown in pots, and several of them with better success than out of doors. Those generally cultivated are *L. tenuifolium*, scarlet, early, *longiflorum* and all of its varieties, white, trumpet; *speciosum* and its varieties, white, or red tinted; and *auratum*, the large gold banded lily. Use clean pots, 6 inches or over in diameter, drain them thoroughly, and pot the bulbs in rich, well broken up turfy loam without any fresh manure in it. Put one, two, or three bulbs into a pot, burying them one to two inches under the soil. Do this at once if you can get the bulbs. Then set the pots in a cellar, frame, shed or anywhere else convenient covering them with leaves, ashes, or other material deep enough to keep the soil moist and exclude frost. Let the bulbs root slowly. When well rooted bring the plants to light and warmth, either in the house or greenhouse or in a frame. Don't hurry them against their will. Keep them moderately moist when they are growing, and if necessary have a neat stout stake in each pot to tie the stems to. Beginning with *tenuifolium* in June, you can have a succession of the others up till September. *Callosum*, *testaceum*, and other tall stemmed sorts are seldom grown in pots.

WHEN TO ORDER PLANTS.

Tower Hill, Ill., writes: I have no hesitancy in following strictly your advice as to the treatment of my flowers. I have several other flower papers, but all others must bow in humility to GARDENING. 1. Can you furnish flowers to the readers of your paper? 2. When shall I order the following flowers: palms, chrysanthemums, cyclamens, amaryllis and Otaksa hydrangeas?

1. No, we do not sell plants, flowers or seeds. But we do cultivate an enormous variety of them; and, frankly, for the asking and without the least reservation, we give the readers of GARDENING the benefit of our experience.

2. Order them any time before April, asking the florist not to send the plants while there is any danger to them from frost in shipping. Palms and hydrangeas are in good shipping order now, so are dormant amaryllis bulbs; but chrysanthemums are likely to be in better condition in March. Cyclamen are apt to be in full leaf and bloom at this time; they can be shipped handier in two or three months from now.

Trees and Shrubs.

THE JAPANESE BENTHAMIA.

(*Cornus Kousa.*)

We are all acquainted with the lovely flowering dogwood (*Cornus florida*) which is so abundant in the woods and by-ways of our eastern and southern states; in spring its floral beauty is generous and lovely; in summer its scarlet fruit is very attractive, and in early fall its leaves are among the first to assume a crimson hue. In the Pacific region *Cornus Nuttallii* takes the place of our flowering dogwood.

The Japanese Benthamia is a small tree not at all unlike our own flowering dogwood in general appearance. But our dogwood comes into blossom before the leaves appear and lasts in beauty till the foliage begins to expand; the Benthamia on the other hand does not begin to blossom till the leaves are out, and it lasts in floral beauty well through June. The floral bracts are quite as large as those of our dogwood, perfect in form and pointed, and of a creamy white color. Our illustration is engraved from a photograph of a spray which we cut off of a plant here in the third week of June last, and pinned against a fence to have its picture taken. It will show you clearer than words can describe what sort of a flowering shrub the Benthamia is. You will even see where the rose bugs have been at work upon the "blossoms." Besides being perfectly hardy at Dosoris, and growing vigorously and blooming as you see in the picture, it also fruits freely with us; but the fruits are not like those of our dogwood, they resemble red strawberries hanging singly on stems like cherries. And as soon as they get ripe the birds pick them off. While not unpleasant to the taste they are soft and insipid and nothing one would crave for.

Although the Japanese Benthamia thrives so well here we do not recommend it for general cultivation much north of here, nor in very dry ground or exposed situations anywhere. In fall the leaves assume a crimson or bronzy crimson color, but much later than those of the flowering dogwood, and the leaves hang on to the trees till quite late in fall.

TREES.

Except in the south planting is at an end for a while. We must now busy ourselves with cutting out such trees as are out of place or supernumerary, and thinning woods or plantations that are overcrowded. In well kept home grounds never lop off trees as lumbermen do in forests, leaving the root with a stump in the ground, but dig the tree out at the root before you fell it, the weight of the trunk and top, especially if you have a rope tied on the tree to pull on, is of very great assistance in prying the stump out of the ground. But if the earth is deeply frozen we should disadvise digging out the trees now, the labor would be too great, better wait till the frost has gone. In the meantime we can look after whatever pruning there is to do.

PRUNING is a necessary evil, the less one has got to do of it the better, but whatever has got to be done should be done promptly and thoroughly. The first thing to aim at is the health of the tree, next its characteristic symmetry and beauty; work for these points. Prune deciduous trees only at this season of the year. Cut out all dead, dying, sickly and broken wood. Then look at the tree and wherever you find two branches rubbing each other cut out one of them; if a branch other than the main stem is asserting itself as a leader head it back, if a tree is lopsided lighten it of some of its limbs on the heavy side, and so on, using your eye and brains to make it a handsomely formed tree. But don't cut out any more good wood than you can help, better do a little at a time than try heroic measures. Besides much winter pruning has a tendency to produce a heavy summer growth of sappy shoots, which is not desirable. We often find oaks, walnuts, locusts and other trees with very dilapidated tops, it may be as well to head these hard in to the trunks, even cutting back a part of the trunk. Of course such stumps will look bad for a year or two, but then they will soon get covered with a luxuriant growth of fresh shoots and foliage that will be quite encouraging. In the Arnold Arboretum at Boston were many old decrepit trees that were treated in this way and now they are well filled out with new branches in rampant vigor. While all the pruning we are apt to give a lawn tree isn't apt to hurt it materially no matter at what season the cutting is done it isn't a pleasant sight to see the maples, yellow woods, birches and other trees dripping sap from every wound in spring, as they will do if pruning is delayed till the winter is getting past. In pruning with the saw first make a cut on the under side of the branch and a foot or two, according to size of limb, away from the stem, then cut through from the upper side. The cut on the lower side prevents slivering when the branch falls. Then cut the stump off close in to the trunk, shave the wound smooth with a draw knife, and paint it with good linseed oil paint. All cuts made with hand shears should also be close to the branch and smooth. In fact while shears are very handy implements and indispensable they don't make very smooth cuts; indeed the vilest pruning tool we know of is the most widely advertised and daintily gotten up of pruning shears, a clean cut is beyond its nature, it is simply a chewing machine.

WEIR'S CUT-LEAVED MAPLE.—There a large and very beautiful specimen of this tree at Dosoris. You will find an engraving of it from a photograph taken some years ago, in Ellwanger & Barry's catalogue. It is one of the handsomest and most elegant trees on the place and always commands admiration. Its symmetry and elegance have been obtained to a large degree by timely pruning, and we are never troubled with having its limbs broken by wind storms—the characteristic fault of neglected trees. When we first found this tree we pruned it into a symmetrical form, and shortened back or cut out every topheavy limb. This induced a heavy growth of sprouts through the tree, but we rubbed off a good many and thinned out and shortened others as best we could in summer, and again attended to the form of the tree in winter. And now it is in a condition when it needs very little pruning, but this little it is sure to get twice a year; it takes only a few minutes each season. Wherever a shoot is inclined to run out too far we cut it back. If this is done in early summer it doesn't cause sprouting at all. A white maple should be pruned with a shears or knife; when branches too big to be cut by these have to be removed the pruning was neglected, and that is why they are lop branched and so susceptible of injury by wind.

PRUNING AN ARBOR VITÆ HEDGE.

O. O. W., Michigan, asks: When shall I trim an arbor vitæ hedge whose main stems are one and one-half to three inches in diameter? I want to cut it down to within two feet of the ground. Can this be done with safety?

Arbor vitæ can be pruned severely from the first to the middle of May more safely than at any other time, but as your correspondent does not give the height of the trees as they stand now nor the width to which the hedge has been pruned I do not know whether it can be cut down to two feet without taking off all the foliage, as the sides would require trimming to correspond with the top height. We have trimmed or rather sawed off eight feet from the top of an arbor vitæ hedge fifteen feet high, and sloped the sides wedge-shaped so that in a few weeks it showed to perfection. It is 35 or 36 years old and looks as young as a 10-year old.

Waukegan, Ill. ROBERT DOUGLAS.

EVERGREEN WINDBREAK—CHESTNUT TREES.

B. E. H., Oneida, Illinois, asks: 1. What kind of evergreens should I plant for a windbreak? At what age and at what time in the year should they be transplanted, and at what distance apart should they be set?

2. Please tell me about the different kinds of chestnut trees. How do they rank as shade and ornamental trees?

1. Much depends on the situation and exposure of your property. In an open exposed country evergreens alone have a hard time of it to begin with, and we generally plant some quick growing rugged deciduous trees on the windward side of the evergreens till the latter get up big and bushy enough to protect themselves. With us the Austrian pine is the best of all; then come the Scotch pine and white spruce. The Norway spruce will out grow any of them to begin with if it thrives well in your neighborhood. The Colorado blue spruce and the Colorado Douglas fir are as hardy as any of them but they are somewhat slow growing at first. Plant in early spring as soon as the ground is nice and mellow. If in one row plant six feet apart, and when the plants meet chop out every second tree; if in two rows let the rows be ten or twelve feet apart, and chop out the alternate trees as in the case of the single row; if in three rows, have the rows ten feet apart, and in due time cut out the middle row. Four year old trees make fine stock for planting.

2. We have three types, namely the American having the smallest but best flavored nuts; the European, of which Paragon and Numbo are varieties with very large nuts, and the Japanese, a small early-bearing tree with large nuts. All are perfectly hardy and fruit freely on Long Island. If well attended to in their youth they make handsome garden trees—we have a picture of one at Dosoris to show you soon—but, except the American one, not large shade trees. Big fruits of European sorts are apt to be a little baggy.

THE FINEST HOLLY TREE.

On the beach by Assateague Lighthouse there stands a holly tree that is a wonder for size, symmetry and wealth of berries. Easily thirty feet high, straight and well balanced it is fully as much in diameter at the lower branches. The general outline might be called pear shaped, and the picture presented this second day of January, 1895, of sharply cut dark green leaves against which show in sharp relief the brightest berries imaginable—every twig bearing its vivid cluster, is a sight not to be forgotten. The lighthouse keeper's son, Mr. Anderson, said the tree was the delight of visitors from everywhere, who freely praised it as the finest specimen anywhere, while the boatman who carried me across said he had known the tree for twenty-seven years and it had not to his eye changed a foot in that time, but "every day in the year looked the same." I was unable to get a photograph of it for you. Does any reader know of a finer holly? GILES LEAHY.

Chincoteague Island, Va., Jan. 2, 1895.

Orchids.

CATTLEYAS.

Cattleya Trianæ is now a leading feature among orchids in bloom. More than ordinary care should be taken to keep up an even and moist temperature by damping the floor and the benches between the pots, but give very little water in the pots, for now is the critical time of their existence. If too much water at the roots be given the plant will be thrown into an unhealthy condition. If possible it is a good plan to remove the plants when out of flower to a cooler house, say 50° to 55°, giving them only water enough to keep the bulbs fresh and without shrinking. Water in the pots only on very fine days and not more than once a week until the plants begin to grow again.

Cattleya Trianæ Backhouseiana and *C. T. alba* are now showing fine bloom and are much admired for their loveliness. I find the latter varies much, some plants show a delicacy of constitution and bear flowers of such a delicate texture that it can be noticed at a glance, while others have a strong stem, stout leaf, broad sepals and petals, heavy and well fringed lip, that are as remarkable on the other hand. These last conditions are shown as the subject of the accompanying illustration.

When the plants are out of flower will be a good time to go through the Trianæs and see that they have got good drainage and clean potting material. There is nothing more conducive to successful cat-

THE WHITE-FLOWERED CATTLEYA TRIANÆ

tleya culture than a free circulation of moist air through the potting material. In and around the hot water pipes there should be only a mild circulation of heat; plenty of hot water pipes sufficient to warm house to 60° to 65° without forcing the boiler and super heating the pipes is very important. Overheated pipes is a great bane to orchid culture and should at all times be guarded against. A sure way of propagating insect pests is to keep up a high dry temperature, and too it is a sure way of enervating good healthy orchid stock. Better let the temperature drop a little on these cool nights than to rush the fires unduly to keep it up. WM. MATTHEWS.

Utica, N. Y.

Greenhouse and Window.

AZALEAS.

W. O. C., Chillicothe, Mo., writes: I have three plants of azaleas eighteen inches or over across the tops, growing in 6-inch pots. I know they need repotting, but always having heard that they are particular as to the soil used, I am afraid to make the venture. Please advise me on this point, also on summer treatment after blooming. I keep them in a pit during winter, where they have always formed their buds nicely and bloomed well for the past three years, but after blooming profusely last spring they seemed perfectly exhausted and failed to regain any vigor since. Would a liquid fertilizer be of any benefit to this spring's bloom?

The azaleas are pot-bound; by the size of head given an 8-inch pot would not be too large. The present pot must be full of roots and it would almost be impossible to give it water enough in the living room for the plant to develop its flowers near their natural size. Give the plant a shift, using any good garden soil with say one-third part of leaf mould and sand added, not forgetting to crock the pot properly for drainage. Don't use liquid manure. I set all of my azaleas out of doors in summer either plunged or planted in the ground. On account of your warmer and drier summers a little shade as given by a high lath shade will benefit them. JAMES DEAN.

Bay Ridge, N. Y.

THE GREENHOUSE.

Greenhouse plants may be divided into two sets, namely, sun-loving and shade-loving plants, and each of these again into cool house and hot house plants. Some people are fortunate enough to have a separate greenhouse for each set, or one large greenhouse divided into several compartments; one for each lot. But in an ordinary greenhouse run at an intermediate temperature we can so manipulate our plants as to find fairly good and suitable places for all of them; keep the heat loving plants at the end next the boiler, the cool plants at the distant one, those that love the sunshine to the south side, and those that love shade at the north side or in some other part of the house that is artificially shaded for them.

Roses, carnations, geraniums, fuchsias, camellias, azaleas, genistas like sunshine; begonias, Chinese and obconica primroses, calceolarias, cinerarias a thin shade; palms, marantas, dracænas, ferns, anthuriums a thicker shade. But a cool temperature often takes the place of shade.

POTTING THE PLANTS.—Examine all the permanent plants as crotons, dracænas, marantas, palms, screw pines and ixoras, and if they need repotting attend to it. It is well to get as much of this sort of work done now as possible, because renewed active growth will soon begin. In potting use clean washed pots, drain them well, covering the drainage with moss, half rotted leaves or fibrous turf to keep the soil from dropping down among the crocks. Shake or pick away considerable of the old soil from the plants, so as to get the ball of roots comfortably into one size larger pots. Pot firmly from the bottom up, but don't fill the pots very full of earth, leave plenty room for water. After potting water moderately from a water pot rose, but after that while you should keep the soil fairly moist all the time, particularly avoid soaking it.

WATERING.—All well rooted or pot-bound plants should be watered liberally; newly potted ones more sparingly. In the morning or early in the forenoon every fine day fine foliaged plants should be syringed overhead. Azaleas not in bloom, genistas and other cool house plants are benefited by frequent syringings provided it is done early enough to let the plants get quite dry overhead before night.

CLEANING THE PLANTS.—Greenfly and thrips are easily subdued by tobacco smoke. If the tobacco is old or long exposed to the weather it loses its strength; get some fresh stems and keep them shut up in a closet or room to preserve their freshness. But tobacco is useless in the case of mealy bugs, scale and red spider. They should be rubbed or washed off with a small brush and sponge. There are lots of insecticides, but use them experimentally only till you become accustomed to them. If the plants are got thoroughly cleaned now and freely hosed or syringed after this we are likely to keep them clean easily all summer.

SOW SEEDS of gloxinias; plants raised now will bloom in summer. Also sow seeds of cyclamen if not already done, and keep the young plants growing all summer. We also like to sow our Jerusalem

cherry plants early in the season to get good berried plants for next Christmas. Chrysanthemums if sown now should give us good blooming plants next November.

POT A FEW gloxinia roots to give us flowering plants in April and May. For early blooming we should also pot a few achimenes; although the "roots" are small they give us good sized plants in two or three months. Pot up a few fancy leaved caladiums, but there is time enough for one or two months yet before starting all the stock, room being the absorbing question at this time of the year.

FERNS.—Repot all that need it, using one shift larger pots; if repotting is unnecessary turn the plant out of the pot anyway to make sure that the drainage is all right and there are no worms in the soil. For quick growing common sorts as cuneatum maidenhairs, pteris of sorts, onychium, nephrodium, aspidium and nephrolepis we use the same sort of soil that we do for geraniums, turfy loam and rotted manure. As ferns like roughish but not cloddy soil we sift out the finest part and discard it. A little leaf mould in the soil for ferns is well liked. Sand in the soil isn't used as much as it was in former years, neither is peat. Some fresh, well dried swamp moss sifted or rubbed through a half-inch mesh sieve, and mixed with a little leaf mould, fibrous loam and coal ashes or sand makes a nice compost for little seedlings.

NOT A HOYA.

Z. B. writes: "I was given a flower, called by the giver 'Hoya wax plant.' Please find enclosed a leaf of same and tell me the proper name and treatment of it."

It isn't a hoya at all, but a very common window or greenhouse plant called *Bryophyllum calycinum*. It is of upright habit and has large fleshy leaves with lots of little notches on their edges, and little plants grow out of these notches. The stem terminates in a tall, stiff, open panicle of nodding flowers issuing from inflated calyx tubes. The treatment of any ordinary window plant suits it. Keep it somewhat warm, only moderately moist, and shade it a little from warm sunshine. The common hoya or wax plant much grown as a window plant is a fleshy-leaved vine. There are several other hoyas though, as *H. Paxtoni*, *H. bella*, and the like, that make dainty basket or pot plants in a warm greenhouse, but they are seldom grown in the window.

CANNA LEAVES ARE DISEASED.

Ontario writes: Can you tell me the cause of blight on enclosed canna leaf, I have several seedlings all similarly affected. They have been grown in a box, at the southeast window of a moderately warm room heated by a furnace. The soil is rather rich but heavy. I notice lately a great many white worms.

It is hard to say what has caused the blight. Cut the plants down to the ground, turn them out of the boxes and shake the soil from the roots, and if you find any of the little worms sticking to the root stocks or any rust-like or decayed spots on the latter, wash the roots and cut out the diseased parts. Then pack the root stocks, one deep, heads up, and moderately close together in ordinarily moist sand or light loam in a box, which should be kept in a cool but always frost-proof dry cellar. Let them rest there for a couple of months or more. Then if they are starting to grow divide the roots and pot or box them off and let them come along slowly and make nice plants for setting out of doors the end of May.

RUBBER PLANT IS SICK.

J. C., Hamilton, Ont., writes: "My rubber tree stand in the hall and has always thriven well until the last few weeks. Latterly some of the lower leaves have become brown round the edges and hard all over and spotted with small brown spots all over them. This is gradually spreading upwards. There is no sign of scale, the leaves and stem quite clean. The last born leaf is much smaller than usual."

We can not tell. Has frost got at your plant? Turn it out of its pot gently and see that the drainage is all right, and pick out any worms you may find trace of, then replace the roots and soil intact. Water very moderately. When more active growth begins in spring it may be well to cut down the plant half its length, and repot it, using a considerably smaller pot than it is now in. About the first of June plant it out in the garden, and about the middle of August lift and repot it.

LINUM TRIGYNUM.—A. S. asks what to do with it after it has done blooming. Cut it in a little so as to make nice shapely bushes, and keep a little on the dry side. Then shake out the plants and repot them, using fresh soil, but no larger pots —perhaps ones not as large—than they were in before. A moderate temperature is better than much heat. Syringe every fine morning. Strike a few cuttings for young plants.

BEGONIA.—In answer to Z. B.: If you cut away the old stem you may weaken the roots, hence the young shoot; better cut the old stem back a little, and after the young stem has grown a good deal and begun to branch and make leaves then you can with benefit to the plant cut the old stem away altogether.

Roses.

BLIND WOOD ON ROSES.

A. S., Hamilton, N. Y., writes: "I have a bench of Bridesmaid roses which have been flowering nicely and are still, but there is a large quantity of 'blind wood' on them. Would it be best to prune back part of it? I am forcing the roses and will throw them out next June."

Years ago it was the practice for rose growers to prune out the blind wood, on the theory that by so doing the strength of the plant would be thrown into blooming wood. But the practice has been gradually superseded by more sensible treatment. The foliage is one of the prime factors in building up or restoring lost vigor. The fact is that while a certain amount of blind wood is natural an excess of it is usually the result of impaired vitality and deficient root action, which may be the result of any one of a number of causes, and which it is futile for one not perfectly familiar with treatment given to try to name. Examine the roots and see if they are working properly, that is if they are white and fibrous; if so water freely on fair days. If the roots are few and dark the best treatment would probably be to run dry and cool for a time until healthy root action is restored and then give plenty of water again. PAUL M. PIERSON.

Scarborough, N. Y.

ROSE MRS. PIERPONT MORGAN.

This is a new rose, a sport from Madame Cusin. The plant is very vigorous and free blooming, and has fine handsome foliage. The flowers are unusually large measuring when in perfection 4½ inches in diameter, very full and double, and of fine shape and build. Their color is a clear, bright cerise or rose pink, and shows equally well in daylight or artificial light. The petals are broad and massive. The flowers last longer in good condition on the plant, and also after being cut, than those of any other rose I grow, and they are borne on strong stems, fifteen to twenty inches long.

J. N. MAY.

Our illustration, from a photograph sent us by Mr. May, was engraved and paid for by GARDENING, and is not an electro from any other engraving. In fact no other engraving that has yet appeared from the same photograph approaches it in depth of detail, clearness, beauty, or fineness of workmanship.

Aquatics.

THREE WATER LILIES FOR TUBS.

E. M. L., W. Va., "wishes next season to grow three tubs (oil barrels cut in two) of water lilies. As I have never grown any plants of this kind I would like to know what three varieties would give me the most satisfaction, also the best time to plant them."

Nymphæa Marliacea chromatella, sulphur yellow; *N. alba candidissima*, white; and for a third I'd have *N. pygmæa Helviola*, yellow; but maybe your correspondent would prefer *N. odorata rosea*, rose. All of these are hardy. If the plants haven't begun to grow plant them about the first of April; if they have started into growth don't plant them out and set the tub out of doors before the first of May. If plants that have started well into growth are set outside early they get a check and they do not come into bloom as early as do those whose roots were dormant when they were planted and set outside. JOHN MCELVERY.

Flatbush, L. I.

The Vegetable Garden.

A HOTBED.

There is nothing new to tell about how to make a hotbed, the same story is told and retold year after year, and we have got to tell it afresh every spring. Hotbeds can be worked to advantage all through the winter in the south, in the north, however, we don't care to start them before February, and then for vegetables only; March is soon enough for our flower seeds. The trouble with the hotbed in midwinter is properly attending it in inclement and stormy weather. But we can get the heating material ready, the loam under cover, and the box or pit of the frame ready.

At this time of the year a hotbed should be in a well sheltered, sunny spot sloping

ROSE MRS PIERPONT MORGAN.

to or facing the south; and the ground should be well drained both at the bottom of the pit and from the surface. The pit for the manure should be two or two and one-half feet deep below the ground, and the frame or box above the surface level should be one foot high in front and eighteen inches or over at back, and banked around with loam or coal ashes. If the pit is lined to the bottom with boards the manure won't cool so soon as it would did it come against the earth bank, and it would keep warm still longer if the lining of the pit were double with an open air space between the two boardings. To have a good job the top boxing or frame should be of pine plank, and beveled on the edge just enough to let the sashes lie perfectly flat on it.

The heating material should be good fresh horse stable manure, thoroughly moistened and heated. Throw it up into a heap to heat, then turn it over, shaking it loose and mix it up well so that all is equally moist and rough, and when it gets quite hot make up your bed with it, shaking it equally and evenly all over, and tread it down firmly, especially around the sides of the frames and under the rafters, if the rafters are not moveable. The end of this shaking out the manure evenly and treading it all down equally may not appear very evident at first, but a month hence when the manure begins to settle there will be puckers and settlings in the bed where the manure was not trodden down evenly. In making a hotbed never use manure that isn't quite hot before it is made up; if it is cold or cool, no matter how new it is, when filled into the pit and packed the chances are it will not heat up at all, or if it will, it will do so only slightly. If you are forced to use the manure before it is quite hot shake it loosely and evenly and pack it down only a little, fill the frame up full and don't pack it at the top at all, then put on the sashes and keep them close till the sun helps to start a heat in the manure. When you get up a good heat in this way tread all firmly and evenly and put on the loam. After the heat is well up the manure should stand about nine or twelve inches from the top of the frame, according to whether you are going to sow seeds or plant lettuces, and there should be a layer of four or five inches of loam over the manure.

After the loam is put on keep the sashes closed till the sunshine above and the hot manure beneath warm up the loam. When the heat of the loam falls to 110° you can sow seeds of lettuces, carrots, radishes or spinach; but wait till it falls to 100° before you plant out lettuces. The heat when on the decline drops to 75° or 80° quite fast.

In hotbeds there is apt to be a steam for the first few days, let this escape by ventilating a little. Indeed, when a bed is new and the loam covering over the manure is thin there is so much "steam" that we tilt up every second sash at the back about a fourth of an inch, even over night, covering the aperture over with a straw mat or some sedge.

And we must protect the plants in the beds from cold weather by covering over the sashes with straw mats, sedge, shutters or other means. In the case of cold frames we can let them remain covered up in stormy weather for days or weeks at a time without injury, but not so with hotbeds, the close warm atmosphere and steam would soon rot off the growing plants were the frames shut up and covered over for a few days at a time.

THE VEGETABLE GARDEN.

As regards cabbage, Brussels sprouts, celery, carrots, beets, turnips, potatoes and other vegetables stored in pits or cellars over winter, they should be looked over and cared for as recommended in last issue. The same directions that were then given about lettuces, spinach and parsley in cold frames hold good still. In fact we cannot yet change much from what was then said about raising lettuces, onions, cabbage, tomatoes and cucumbers from seed, or forcing rhubarb and asparagus.

Make up your list of seeds for this years garden and send for the seeds. when they come unpack the box and check off the list, then mark "1895" on every package. This is to prevent them getting mixed with any of last year's seeds that may have been left over. Some seeds as melons and beets are good enough the second year, but in many as peas the vitality is greatly lessened or in leeks destroyed. By having the year of purchase marked on the bags every year we know what we are sowing and the chance of success we may have. Put the bags into drawers or on shelves in a closet or elsewhere where they can be kept dry and secure from mice.

Get your seeds from responsible seed stores such as advertise in GARDENING. We ourselves do not buy our seeds at the village grocery store; we send directly to the seed store for them. Mail orders receive just as much attention as those sold over the counter. We don't deprecate all seeds that are sold at the groceries though, for we find good beans, peas, and turnips there; these we can see and feel before buying them. Because seeds will germinate and the plants grow like weeds doesn't indicate quality; supposing your lettuces grew with the vigor of cabbages but didn't wait to heart well, what would be the worth of them? If your celery grew rankly but didn't clasp its heart together and the leaves were hollow stalked, it would be poor celery and ill-keeping. Such seeds are cheap seeds. They are grown in mild climates by the field with little attempt at rogueing. And it is for this reason that our most successful market gardeners are so very particular to save their own seed from their very choicest plants. As amateurs have no means of knowing anything about the crops from which the seeds were saved, we pin our faith on the respectability of the seed firm we deal with and are generally right. Remember, though, that there are eminently respectable little firms as well as big ones.

Catalogues.

W. ATLEE BURPEE & CO., PHILADELPHIA.—A book of over 170 pages, containing all the standard sorts of garden, flower and farm seeds, and many novelties. It is one of the catalogues we value highly as a reference book, because we know how perfectly reliable the firm is and how painstaking it is to have everything of the best quality and exactly as represented. Its great trial grounds at Fordhook Farm place it in an enviable position among seed firms, for there is grown or tested every kind of seed that is sold.

J. M. THORBURN & CO., 15 JOHN ST., NEW YORK.—This is a gilt edged catalogue of 116 pages, and contains a vast array of flower, vegetable, farm and tree seeds, etc., also many novelties. It is a catalogue we always look for anxiously because of its fullness and trustworthiness, and it lays on our shelf of text books.

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Others crowded out till next issue.

GARDENING

WILLIAM FALCONER, Editor.

PUBLISHED THE 1ST AND 15TH OF EACH MONTH

— BY —

THE GARDENING COMPANY,

Monon Building, CHICAGO.

Subscription Price $2.00 a Year. 24 Numbers. Advertising rates on application.

Entered at Chicago postoffice as second-class matter.

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All communications relating to subscriptions, advertisements and other business matters should be addressed to The Gardening Company, Monon Building, Chicago, and all matters pertaining to the editorial department of the paper should be addressed to the Editor of GARDENING, Glen Cove, N. Y.

GARDENING is gotten up for its readers and in their interest, and it behooves you, one and all, to make it interesting. If it does not exactly suit your case please write and tell us what you want. It is our desire to help you.

ASK ANY QUESTIONS you please about plants, flowers, fruits, vegetables or other practical gardening matters. We will take pleasure in answering them.

SEND US NOTES of your experience in gardening in any line; tell us of your successes that others may be enlightened and encouraged and of your failures, perhaps we can help you.

SEND US PHOTOGRAPHS OR SKETCHES of your flowers, gardens, greenhouses, fruits, vegetables, or horticultural appliances that we may have them engraved for GARDENING.

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ANOTHER NEW GARDENING PAPER?—It is rumored that Mr. Van Deman, late of the U. S. Agricultural Department, is contemplating starting a new horticultural magazine. We are sorry to hear it, for we like Mr. Van Deman and appreciate his pomological knowledge. If he does, however, he shall have our friendship and good will.

MRS. ELIJA A. LONG.—It will be with genuine regret that many and many a horticulturist will read of the death of Mrs. Long of LaSalle, near Buffalo. Her husband was the editor of *Popular Gardening*. They had a beautiful country home, filled and planted as an extensive experiment garden. But the happiest memory we have of the place is the kind, and motherly, and hospitable lady who has gone before us. We extend our warmest sympathies to her husband and family.

HOW OUR ADVERTISERS DO BUSINESS.—It is just as pleasing to the editor of this journal as it must be to the business manager to know that our advertisers give our subscribers perfect satisfaction. Under date of January 17 one of our readers writes us: "I owe GARDENING a debt of gratitude for introducing me through its advertising columns to — —. He filled quite a large order—for an amateur of limited means—for me and a friend of mine, and so far everything has been very satisfactory. It usually happens when prices are reasonable one not only buys more but spends more, you have a sense you are getting the worth of your money, and that makes you feel like getting all you can of a good thing. I thank you also for your very kind replies to my queries."

NURSERY AGENTS are usually called tree peddlers. We can not join in the general hue and cry raised against these men. Some are bad and will lie like all possessed, but others are honest in their representations and dealings. Thoroughly trustworthy nurseries won't allow their agents to misrepresent their trees and other stock, any more than our first-class dry goods stores will allow their salesmen to misrepresent their wares. But as many of our readers may have so little to do with nurseries as to be unable to tell which are the worthy and which the unworthy concerns we will try to advise them in a general way. The garden business is divided up into several branches, such as seeds, florists' flowers or greenhouse plants, aquatics, hardy perennials, roses, fruit trees and small fruits, and trees and shrubs; and there are several large firms that deal in all of these things. The best of these firms advertise in GARDENING. The shady concerns and those who employ unprincipled lying agents don't like our looks, they prefer a class of people more easily humbugged and swindled than are the readers of this journal. Now, if you want anything in the nursery line write direct to the nurseryman for it; don't buy it of any agent. You will be booked as a private customer and get the best stock in the field At Dosoris we do this—send directly to the nurseries for what we want. But first send to the nurserymen for their catalogues and see what they have got.

SWEET SCENTED FLOWERS AND FRAGRANT LEAVES, by Donald McDonald, with introduction by William Robinson, is the name of a dainty volume of some two hundred pages, that comes to us from Sampson Low, Marston & Co., London. The publisher's name is a guarantee that the book is good. Mr. Robinson's name insures its excellence, and the author has handled the subject in comprehensive, systematic and delightful way. It is a symposium of prose and poetry and specific accuracy. The author's literary scope, elegant diction, facile and expressive pen, and charming familiarity with the plants of all countries win our confidence at the beginning, and we wade through its pages with unceasing pleasure. Some fifty pages are devoted to an historical sketch of the fragrance of flowers, and over one hundred and thirty pages to an alphabetically arranged list of popular plants with brief descriptions of them and information about the fragrance of their flowers or the odors of their leaves and the uses they serve. The most popular plants, for instance narcissus, iris, lilies, carnations, violets, primroses, and the like, receive particular attention, the article on roses is extra good, and even orchids come in for considerable notice. Trees and shrubs are also included. In the case of tulips, begonias, phloxes and many other genera not generally characterized for fragrance, we are told what are the fragrant species among them, and in the case of the rose whose name is almost synonymous with fragrance, several varieties are specified as having no fragrance. In some cases, for instance *Datura*, *Habrothamnus* and *Clerodendron*, when the plants have fragrant blossoms but malodorous foliage we wish the author had been more emphatic in his denunciation of the latter. And we believe if the gems of history, odors and other interesting points were indexed the book would be greatly improved. It also contains sixteen colored plates—of daphne, lily of the valley, mignonette, sweet sultan, etc.

FLOWER GARDENING IN THE CHICAGO PARKS.—On the front page of GARDENING, December 1, '94, we gave an illustration of some flower bed designs in South Park, Chicago. The article accompanying it told how the thing was done—the designs made, filled, and tended, etc. It was one of the most matter-of-fact, instructive and pointed articles of the kind ever written. We instructed our correspondent to give us the naked facts only, and avoid any comment on the merits or demerits of the design, or the good or evil of that style of gardening. This was because when we visited the Chicago parks we were informed that to see that sort of thing brought thousands and thousands of a certain class of people out into the parks on Sundays who could not be induced by any system of mild gardening to exchange the glare of the saloon or the sweltering atmosphere of the crowded tenement for the refining influence, quiet repose and fresh air of the open parks. It requires heroic features to bring such people out, and these startling beds occupy only a little nook among the hundreds of acres of gardened grounds where the multitude can spread itself, play and picnic. The outing does them good and makes them better citizens. They bring their wives and children, and friends and visitors out with them; and they wash up and dress up to come out, and they behave themselves. Our friends in England didn't view it in that light, however, and the London *Garden* has gone for us with hammer and tongs. We read in it:

"We see in Mr. Falconer's very pretty little paper, GARDENING, published in Chicago, a horrible example of carpet gardening, in which large vases, bandaged over with black and white lines, are made to spring up from the ground, and in the middle of all a fearful representation of the globe, belted round with dark lines. * * This is the sort of thing that makes flower gardening ridiculous in the eyes of all educated and artistic people. No human being could find so ugly a thing to draw among natural and artistic things, and the utmost that can be said for such rubbish is, that it may go along with the minor work of the so-called decorative artist, wall paper men, pastry cooks, and other folk who call themselves artists while doing mostly ugly things. We regret to see public gardening in America, where there have been such good gardens and parks made by Mr. Olmsted, degraded by a wholly needless and inartistic mode of setting out plants, unnatural and contemptible in every way."

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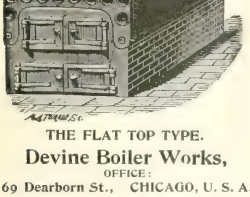

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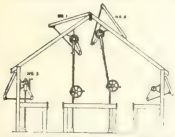

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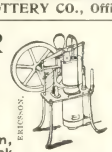

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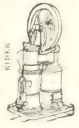

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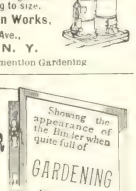

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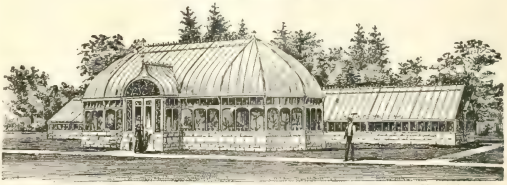

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THE ELATA NORWAY SPRUCE.

(*Picea excelsa* var. *elata.*)

The typical Norway spruce is the most generally planted of all evergreen trees. People buy it because it is cheap, sturdy, bushy, well formed, quite hardy, easy to transplant, and with anything like fair treatment a sure and quick grower; indeed it is the fastest grower of all our conifers. But it has a coarse and common look about it, and except for some particular end other than a garden specimen tree, such as a shelter nurse for other trees and to be cut out when they get up, a screen to shut incongruous objects out of view, a shelter hedge, and the like we should not advise any one to plant much of it. While it will grow most anywhere it likes good soil, a little stiff if possible, and plenty moisture; then it makes a tall straight stem clad with branches to the ground. Dry ground, especially when coupled with a bleak exposure, renders it rather homely and woe-begone early in life, and a ready prey in summer to the attacks of red spider.

Aside from the common Norway spruce we have several garden forms of it. Some of you may know the hideous, sprawling contortion known as *P. excelsa* var. *monstrosa*. It is the ugliest tree we know of. Parsons' elata spruce (the subject of our engraving, which has been prepared from a photograph of the Dosoris specimen) in its long bare arms is somewhat suggestive of the *monstrosa* variety; but this one with a little timely care makes a pretty and striking specimen. We keep it to a straight stem. Its young branches make a tuft of small branches at the end with a longer and stouter shoot running out from the center of each tuft. Every year we cut out or shorten these long end shoots so as to encourage the tassels of branches to extra strength, and preserve the good form of the plant.

The variety *inverta* is a weeping or pendulous form, a monstrosity a good deal sought after in gardens. It grows quite free.

A variety called *conica* is, in its way, one of the prettiest little conical pyramids we have. It is much sought after for small gardens, and also for winter plants in pots or vases to set outside about fashionable hotels and city residences.

A very dwarf compact variety is called *Gregoryana*. It is slow growing and exceedingly dense, twenty year old plants perhaps not measuring more than 4 or 5 feet through by 2½ to 3 feet high; but if not shaded by encroaching neighbors it retains a well filled and healthy appearance. Another very dwarf variety with more of a compact upright form than *Gregoryana* is called *pygmæa*, but it is a homely little bunch.

The varieties *Clanbrasiliana*, *Finedonensis* and a few others were used considerably some years ago, but in view of many other finer evergreens they are little sought for now.

RHODODENDRONS IN OHIO.

H. R. G., Dayton, Ohio, asks: "What varieties of rhododendrons would be most likely to do well here? We have zero weather once in a while. I am informed some kinds of rhododendrons do much better here than others."

How about your soil? If it is a limestone one rhododendrons will not succeed with you except in specially prepared beds, these should be dug out two feet deep and filled up with any good surface soil from land not impregnated with lime. Peat is not necessary, but it is helpful to mix with heavy soil. Leaf mould in large quantity mixed with the soil is good. Manure is not desirable. The ground should be kept mulched, especially in summer, to keep it moist, cool and free from cracking. Rhododendrons are benefited by a little shade from hot sunshine, and they love moisture, and at the same time good drainage. Given these conditions there are a score or more of varieties that will bear a zero frost. Among the most certain are:

Abraham Lincoln, rosy crimson.
Album Elegans, white to blush.
Album Grandiflorum, pale blush.
Alex Dancer, rose, light center.
Bertie Parsons, lilac blush.
Bicolor, light, center dark rose.
Candidissimum, white to blush.
Charles Bagley, bright red.
Charles Dickens, dark scarlet.
Delicatissimum, blush, margin pink.
Everestianum, rosy lilac.
General Grant, rosy scarlet.
Grandiflorum, dark crimson
Hannibal, rose colored, late.
H. W. Sargent, crimson, late.
King of Purples, dark purple.
Lady Armstrong, pale rose.
Mrs. Milner, crimson.
Purpureum Crispum, purple.
Roseum Elegans, rose.

And don't omit some of our wild *Rhododendron maximum* for late flowers.

FLOWERING SHRUBS FOR MILWAUKEE.

"A novice" asks: "What are the most desirable flowering shrubs for this neighborhood?"

Give them shelter from sweeping cold winds in winter, and a heavy soaking of water now and again in summer and early fall in dry weather, and a mulching over their roots till they get well established and the following should do well with you: Tartarian bush honeysuckles, American snowball, *Spiræa Van Houttei*, *Hydrangea panculata grandiflora*, sweet syringa (*Philadelphus coronarius*), *Prunus triloba*, purple and common barberry, common lilacs, Japanese tree lilac, Russian tamarix, *Rosa rugosa* and sweetbrier, purple fringe, yellow currant, tree pæonia, elder, European spindle tree, *Clethra alnifolia*, and others.

Landscape Gardening.

BRIAR CLIFF ON THE HUDSON, THE HOME OF MR. W. W. LAW.

Among the green hills that line the beautiful Hudson river, and a couple of miles inland from Scarborough, stands Briar Cliff, the home of Mr. W. W. Law. The mansion is built on a knoll and commands views that form a panorama of nature's loveliness. The lawn view illustrated here is looking west from the front of the house. This lawn was but recently masses of rocks and a forest of trees, but after much blasting and clearing it has been converted into a pleasing, sweeping, diversified and beautiful view. The stately firs, cedars and other fine trees shown are the work of nature; while in the distance we get a glimpse of the Hudson river, and across it, forming a misty purple background, are the hills of Rockland. Away to the south are verdant valleys and pine clad hills made famous by Washington Irving in his romantic story of "Sleepy Hollow," where to this day are pointed out the identical trees, the old church and houses, and the murmuring brook over which the galloping headless Hessian chased the terrified Ichabod Crane. Mr. Law's estate extends across a portion of this famous valley, in which romance and war and peace have each been immortalized by the historian's pen and crystalized by the heroes of American independence.

The country here affords new charms at every season of the year. In winter it has emerald clad slopes with dense backgrounds of pines, here and there glimpses of white and blue sky—in sheltered spots are lingering oak leaves loth to part, and forming as it were a touch of sad color on the scene which hangs before us like a piece of tapestry upon which Dame Nature has spread her charms. In the springtime the atmosphere is laden with the breath of apple blossom, great old orchards that have stood the tempests of the past century abound here on the southern slopes, some of them appearing as if planted by the men of Revolutionary days. In summer we have an abundance of that North American flora so charmingly beautiful, but alas, so little appreciated. But it is in the autumn, when the country along the Hudson is most grand, the trees seem to vie with each other in beauty of tints that appear to change with every gust of wind until they form a symphony of indescribable colors.

While clearing away the giant rocks and dense forest growth that occupied the grounds immediately surrounding his house Mr. Law has preserved the most beautiful effects. Many fine streams rush laughingly down from the hills and through the glens, here lost in the dense woods, there rippling over rocks until they meet to form a little lake that now supplies the place with water. Some fine roads have been made, and the ground that is intended later to form an extensive kitchen garden has been thoroughly drained.

Mr. Law is a great lover of flowers—immense borders of roses, rhododendrons, azaleas and other kinds of ornamental shrubs have been planted with fine effects. A new range of greenhouses have been erected, in which are growing roses and a general assortment of plants and flowers intended for home use. Mr. Charles Weise is the superintending gardener who is transforming this hitherto wild region of wood and rocks into one of the most charming flower decked landscapes along the banks of the Hudson river.

JAMES IVERA DONLAN.

A FAIRY WOODS.

A subscriber in New Jersey has some acres of open woodland which she wishes to convert into a "Fairy Woods," filling it with small or middle sized trees remarkable for their beautiful flowers, graceful forms, attractive fruit or fine foliage effects. No big timber trees at all are to planted in it. Shrubs in great variety remarkable for their beautiful flowers, handsome or persistent fruit, or fine foliage will also be planted; and, later on, comely, bold, and beautiful hardy perennials in telling abundance will be used in wild garden fashion. This piece of woodland presents a diversified form; part of it is exposed to the open sweep of the bleak northwest wind, other parts are warm and well sheltered, and there are hill, dale and level ground in it, and on one side it grades off into a low or swampy piece of land. The whole, how-

THE WEST LAWN AT BRIAR CLIFF ON THE HUDSON.

ever, offers excellent opportunities for the formation of a lovely "Fairy Woods."

In planting the woods refuse everything with double flowers, for instance, the double-flowered horsechestnuts or cherry trees, snowballs, or H. P. roses; exclude everything of a strikingly foreign appearance, as common lilacs, and omit variegated leaved plants. Such things belong to the garden, not to the wood.

Make a selection of plants that will, in leaf, flower, or fruit, afford you interest the whole year round, and special selections for special purposes. Prepare the ground thoroughly for every plant to be set out, for it is better to have one plant that is happy and flourishing, than a dozen that are stunted and wretched; then give all of them the conditions for thrift. Get the very finest nursery-grown stock that can be bought, and don't waste time and money on collecting or digging up wild plants. Don't take big old plants or stunted small ones at any price; insist upon having young plants that have been transplanted in the nursery once at least, and are of even, clean form and well rooted If you want a large number of trees you can buy nursery stock of A1 quality at a very moderate figure.

POINTS TO OBSERVE.—Make the Fairy Woods as luxuriant and gay and beautiful as you please, but preserve its identity as a wood Don't make it a garden, nor give it the aspect of a garden, nor fill it with garden plants. Preserve, but emphasize its best natural features. Make a pond of the swamp, plant on uneven shelter on the northwest side, embolden the rocks, and otherwise fix the topography of the land as you would like to imagine it when the woods have matured. Avoid long artificial, smooth, even surfaces, and have as few roads in it as you can get along with. How to arrange the ground can be determined only on the spot.

A SELECTION OF HANDSOME FLOWERING TREES FOR THE FAIRY WOODS.

Probably the soft maple is too large a tree, but it is the earliest in bloom; about the first of April the red maple is in floral glory. The little mountain maple (*Acer spicatum*), blooming in early summer should be included because of its great profusion. Blooming before the leaves appear and lasting till they are out, are several wild plum trees as the American, Chickasaw and Myrobalan, *Davidiana* and *tomentosa* and that lovely fountain of pink, *pendula*, and the wild red cherry (*Prunus Pennsylvanica*). Several kinds of native June-berry (*Amelanchier*) are exceedingly profuse in spring, and are followed by the pretty Asiatic species. In May we have red and yellow buckeye trees and red and white horse chestnuts, and in mid-summer the dwarf or spreading one. Before its leaves appear the red-bud lightens up the landscape, and if set in front of an evergreen background has a very telling effect. The Japanese species, which is dwarfer and brighter, should also be planted, but remember it is subject to the "die-back."

Early in May what can be lovelier than our native flowering dog woods? Plant it abundantly, and get some pink and red flowering forms of it too. There are several other cornuses we should include for instance our native alternate leaved one, and the Japanese Benthamia (*C. Kousa*). The Benthamia's "flowers" are quite as showy as those of our flowering dogwood, but not produced in such quantity. Give it a sheltered spot and good ground. About the middle of May the common snowdrop tree is a lovely sight dripping with its myriads of white bells, and a fortnight later the species *diptera*, whiter and prettier, is in perfection. Give the last named a sheltered place. There are other both American and Japanese snowdrop trees we mustn't omit, for instance *Styrax Obassia*, *S. Japonica*, *S. Americana* and *Pterostyrax hispidum*. The first tree to leaf out in spring is the Siberian bird cherry (*Prunus Maackia*) and it is the earliest to bloom, about two weeks ahead of the European bird cherry, which in its turn is about a fortnight earlier than the American one. Get all three.

What can be more beautiful that apple, pear, peach, and apricot trees when they are in bloom, or what is more profuse? But they are too suggestive of the orchard and garden for admission into the Fairy Woods. The Japanese crabs (*Pyrus Toringo*) usually catalogued as *P. Malus floribunda*, however, we would use both for their mist of blossoms in May and their wealth of pea-big, persistent fruit in fall. And the American fragrant crab apple (*Pyrus coronaria*) later blooming than the others, and very beautiful, should be used freely.

Plant the flowering ash (*Fraxinus Ornus*) for its white fleecy flower heads and peculiar fragrance, but it will require some tact to know where best to put it. Hawthorns are so subject to rust and borers that they are losing favor, still we should recommend that you plant a few single flowered white and red blooming sorts (but no double ones, for they are scentless) for the delightful fragrance of their blossoms, and their berries in fall. And don't omit the cockspur thorn, it does fairly well with us. The laburnum or golden chain is such a foreign looking tree that you had better restrict its society to locusts, rosecacia, yellow wood and other of its own kindred: among them it may be admissible. Although our common and clammy locusts are troubled so much with borers

they bloom freely, and we get a good deal of pleasure out of them, and among the bushes at their feet the pretty rose acacia can run wild. On the breast of the slope or somewhere where it can be seen to advantage plant the yellow wood. Its elegance when in bloom is too charming to crowd out of sight. The white fringe tree too must be exposed to view. But the purple fringe, being hard to place, should be relegated to the company of other sumachs.

On the warm side of the wood magnolias may be planted, but don't use *Yulan, obovata, Soulangeana* or any of that class; they would look out of place. *M. Fraseri, Umbrella* and *macrophylla*, native species, and *M. hypoleuca*, from Japan, are all trees, and appropriate and showy, and in the way of shrubs or small trees plant *M. parviflora* and *Watsoni*, from Japan, and *glauca*, our native swamp magnolia.

Of the host of available viburnums the sheep berry (*V. Lentago*) may be the only tree, but there are many shrubs which we will consider later. They are particularly useful for border thickets and rough places, and for their wealth of flowers succeeded by abundance of berries.

Although we would exclude common and Persian lilacs because of their foreign appearance and garden association we would admit all the fleecy flowered ones as *Syringa Japonica, S. Amurensis* and *S. Pekinensis*, and too such types as *Josikæa*. In company with them would come privets, but they are shrubs.

The silver thorn (*Elæagnus hortensis*) is not showy, but in June when its myriads of yellow blossoms are open it fills the atmosphere for rods around with honey fragrance.

Then towards midsummer come the sweet chestnuts. If the American grows too tall get the European and Japanese, they bloom as abundantly. And the lindens! The little Chinese linden (*Mongolica*) is the earliest with us, and the Europeans the densest and most profuse. By the Fourth of July we get into the catalpa season. *C. speciosa* comes into bloom in June, a fortnight ahead of either *C. bignonioides* or *C. Kæmpferi*. The paulownia blooms earlier than the catalpas, but on account of its similarity in build and foliage it is well to group it with them.

Then comes the yellow Kœlreuteria, lasting with us well through July. And later the sorrel tree, whose lily of the valley like flowers are very pretty, but unfortunately the tree doesn't always behave satisfactorily. At the end of the month or early in August the Japanese Osbeck's sumach has every branch terminated with a big panicle of whitish flowers. The Japanese sophora winds up the flowering period, after the middle of August, of our trees.

The floral extravagance of the "Fairy Woods," however, has got to depend upon the multitude of appropriate shrubs, vines and other plants which we must defer naming till a later issue.

The Flower Garden.

SWEET PEAS.

We must have lots of sweet peas, and this means that we must sow a good deal of seed and grow a pretty long row. Al of the very new varieties are expensive and sold in packets, but we want some of them for experiment, to see and enjoy the improved flowers, and keep up with the times. For our main crop, though, there are several good old kinds whose seed is cheap by the ounce or pound, and whose flowers are delightful for cutting. Take Mrs. Sankey, white; Cardinal, red; Boreatton, very dark purple; Mrs. Gladstone, soft pink; and Blanche Ferry, pink and white; what beauties they are, and each one is so distinct from the other! As we want to make two sowings, the first as early as we can get the seed into the ground, and the next after the first sowing is up a few inches, we had better get seed enough for both to begin with. As good varieties are as easily grown as poor ones the mixed seeds sold by seedsmen are really fairly good and give a fine assortment of flowers, but some of them we shall like and others we won't care for. This is why we prefer to buy special varieties and do our own mixing if we want to.

The Rev. Mr. W. T. Hutchins, Indian Orchard, Mass., makes sweet pea growing a hobby, and by actual practical experience knows more about them than anybody else in the country; he has grown every variety extant, and now has seventy-seven sorts on his list. We wrote to him the other day asking him to please tell us what he considers the best half dozen varieties that are plentiful enough to allow us to buy the seed by the quarter of a pound. He answers as follows:

—

What could possess you to think of reducing seventy-five varieties to six? Honestly I would not think of naming less than twenty-five varieties as of first-class merit. I wish you could see one of my exhibits. But then I will answer your question. We shall have to cut off the 1894 and 1893 novelties, for I doubt whether you can get reliable seed of them by the quarter pound now.

Mrs. Eckford is the finest sweet pea in form up to 1894. As I grow it, and as reliable seed ought to produce it, it is a triumph in sweet peas. Her Majesty I should put next. The best white up to '94 is Mrs. Sankey. Countess of Radnor you must have, although I fear there are lots of deteriorated stock in the country. I should include Blanche Ferry, not for any merit in size or other quality, but simply because it gives the best and brightest contrast in pink and white. It bears no comparison with the improved sweet peas, but holds its place as an excellent commercial variety. Then the old and ever reliable Butterfly, if you get the true Butterfly, which is the blue edged and blue laced white, and not carmine flushed, which is Capt. Clarke.

But then how can you have only six? You must have the standard colors. You must have a soft pink. Up to the introduction of Blushing Beauty Mrs. Gladstone held the best place for a soft pink. Then a scarlet. Until Firefly displaced it Cardinal was the best scarlet. Then what of the dark sorts? For a dark maroon Boreatton must be chosen until Stanley is supplied to the trade.

The best six varieties to buy by the quarter pound are:

Butterfly, white, edged and shaded with blue.

Blanche Ferry, pink and white.

Countess of Radnor, large, beautiful, pale mauve or lavender.

Mrs. Sankey, a grand large white.

Her Majesty, rose color, very large.

Mrs. Eckford, grand, delicate primrose yellow.

The best twelve sorts to date, not including this year's novelties, which I have not yet seen in bloom, are:

Blanche Ferry.
Countess of Radnor.
Mrs. Sankey.
Her Majesty.
Mrs. Eckford.
New Lottie Eckford, large, lavender and white.
Blushing Beauty, soft pink, superb.
Firefly, best of all scarlets.
Duke of Clarence, rich, dark claret.
Venus, salmon buff, grand.
Stanley, best very dark maroon.
Lady Penzance, very beautiful, light laced rose pink; of great merit.

W. T. HUTCHINS.

Indian Orchard, Mass., Jan. 31, '95.

FLOWER GARDEN NOTES.

GERANIUMS.—Were I restricted to six varieties of single geraniums I'd take Athlete, clear scarlet, white eye; John Salter, salmon tipped with white; Mrs. George Smith, salmon; Queen Olga, pink, a fine bedder; Sam Sloan, velvety crimson; and Souvenir de Mirande, variegated flowers. In the way of double flowered varieties I should lean to Brunantii, scarlet; Beaute Poitevine, salmon; Golden Dawn, salmon shaded with orange; La Favorite, white; La Pilote, crimson scarlet; and Mrs. Hayes, pink. Mountain of Snow is queen among the white edged sorts, and Mrs. Pollock among the golden tricolor sorts. In the way of ivy leaved geraniums these are fine: Berthelot, magenta; Jeanne d'Arc, white; and P. Crozy, a new variety whose flowers show the nearest approach to scarlet of anything in this line yet secured.

ABUTILONS.—Boule de Niege, white, and Firefly, salmon scarlet, for the flower garden in summer, are as good as any. Golden Fleece should not be omitted. The new silver edged abutilon Souvenir de Bonn is one of the most distinctly variegated and conspicuous of all bedding plants. The habit is vigorous and the foliage large and distinctly margined with a broad belt of white as conspicuous and striking as the white leaf edge of the most marked of our geraniums.

COLEUS.—Golden Bedder, yellow; Queen Victoria, crimson with bright golden edge; and Verschaffeltii, rich crimson, are perhaps the most indispensable coleuses we yet have for outdoor gardening.

RIVERTON.

N. J.

The Greenhouse.

GREENHOUSE NOTES.

FERNS FOR THE HOUSE.—While a host of handsome ferns can be grown in perfection in the greenhouse, those that succeed in our windows are not so numerous. The common maidenhair fern (*Adiantum cuneatum*) is one of the best and prettiest; *Davallia strieta*, with lace-like fronds is also good; the variegated *Lastrea aristata* thrives well in a cool room; and you all know how popular the sword fern (*Nephrolepis exaltata*) is as a pot or basket plant in the house and how well it thrives. These are all common ferns but they are good ones.

PALMS are very largely used in house decoration both in summer and winter, the lesser ones as Cocos *Weddeliana* for table use, and the larger ones like *Areca lutescens, Kentia Belmoreana, K. Fosteriana, Phœnix reclinata* and *Latania Borbonica*, to set in the hall, dining room or parlors, isolated or in groups. These few palms are easy to manage, and as good as any for the purpose.

A PERSIAN CYCLAMEN

THE SHRUBBY ALLAMANDA (*A. Williamsii*).—This is something good and choice, and worth having. It is a bush rather than a vine, and can be kept in quite a compact form. Every shoot is tipped with a cluster of yellow flowers. Of course like all allamandas it needs warmth in winter, but the ordinary heat of a sitting room is enough for it, say 55° to 60°. It is evergreen and continuous blooming. In summer it may be planted out.

BOUVARDIAS are in their heyday between November and February, and when well grown they are among the most charming of mid-winter blossoms. Alfred Neuner, double, white; Pres. Cleveland, single, dazzling scarlet, and Rosea multiflora, salmon rose, are a trio well deserving cultivation.

CANNAS are indispensable now in the summer garden. Give them deeply worked rich ground and plenty water and they will make a fine display. In fact, as pot plants for conservatory decoration in winter they have also established a well deserved good recommendation. The following are very fine sorts: Alphonse Bouvier, rich crimson; Charles Henderson, crimson, very fine; Egandale, cherry red; Florence Vaughan, yellow ground with red spots; Madame Crozy, rich scarlet edged with yellow; Paul Marquant, rich salmon; and the newer Paul Sigrist, dazzling crimson with a broad yellow band.

FANCY-LEAVED CALADIUMS.—We have given these a good deal of attention, getting and growing on trial most every new variety, and imported the rarest and choicest from Brazil. Some of them are extraordinarily beautiful, in fact some are so pellucid and "refined" that they are rather difficult to grow into thrifty specimens. I should advise beginners, however, to first try a few of the very vigorous, beautiful kinds, that will surely make fine plants with very little trouble. A good half dozen are Auguste Riviere, green leaves with gray center and crimson spots; Boildieu, leaves are crimson in center and have a deep green margin; Chantini splendens, spotted with rose and crimson, and brilliantly flamed in center; La Perle du Bresil, white, delicately tinted with rose, midrib and veins dark green, large and transparent; Louis Duplessis, red rays and veins on a white ground, green margin; Triomphe de l'Exposition, crimson center, bright red veins and green border. These plants should now be at rest and kept perfectly dry in a moderately warm room, warm shed or greenhouse, letting them stay there as long as they seem to be in sound condition and not inclined to start into fresh growth. As pot plants in the greenhouse they are capital, filling it up in the summer months. And planted out in the flower garden in summer in such a place as you would devote to begonias—somewhat moist and shady, they thrive well. As they are sensitive to cold, however, don't plant them before June. RIVERTON.

N. J.

CYCLAMENS.

I wish you could see the display of cyclamens we have now in the conservatory; it is fine. And what a variety of color! To a large extent we treat the cyclamen as if it were an annual, raising a fresh stock from seed every year and throw them away when they have done blooming In this way we get nicer plants and finer flowers than we could from second year or older corms. But we do keep over a few of the very finest varieties if the corms are good and not over large.

It takes twelve or fifteen months from seed to get a real nice cyclamen plant in bloom. To have them in flower at Christmas we sow the seed in September or October; indeed, I like to sow the seed before New Years no matter how late we want the flowers. Some florists make a point of getting cyclamens into bloom in November, but this is troublesome.

The plant shown in the accompanying illustration (from the Guide to the Conservatory here) was one of those I grew last year, and when photographed was fourteen months old from seed. We have them much finer than that just now. We sow the seeds in pots or pans half filled with drainage, and the rest with light fresh soil, and keep them in a temperature of 60°. As soon as the little plants make two leaves we lift them out of the seed pot and transplant them into other pans or flats filled with a compost consisting of fresh sod loam broken up fine, some old cow manure, leaf mould and sand. And this is about what we use at subsequent repottings during summer. From the moment the seedlings appear above ground till after they have done blooming keep them growing; never let them flag nor rest. They require a very even temperature, say not under 55° nor, if we can help it, over 60°.

As cyclamens are particularly subject to such insect pests as greenfly, thrips and red spider these must be looked after and kept off. By keeping some fresh tobacco stems under and about the pots and replacing with fresh tobacco every fortnight the greenfly and thrips can be got rid of and kept away, but this has no effect upon the spider. It appears in winter if the quarters are overheated or too dry, and the same in summer, but in warm weather it may appear no matter where the plants are. Close attention to the plants and syringing them early in the afternoons in summer, however, will keep it at bay.

But you can raise very nice cyclamens indeed by sowing the seed now and treating them as already directed, and get nice plants for blooming a year to fifteen months hence. What we grow is the variety called *Cyclamen Persicum giganteum splendens.* A. W. BENNETT.

Sup't of Parks, Pittsburg, Pa., January 29, 1895.

MANURE WATER—LITTLE BUGS—NO BLOOMS.

A. M. D. asks: 1. After bulbs are brought to the light ought they to be watered with manure water or "excelsior" fertilizer once a week, or will either be too rich for them? Also should I sprinkle them overhead or just keep the earth wet?

2. In my conservatory there are little bugs on my begonias and lilies; is the atmosphere too dry?

3. My plants look green and vigorous, but for some reason they will not bloom.

1. If the soil in which they are growing is ordinarily good no manure water should be needed. In the case of Easter lilies, however, if they are growing rankly and are root bound a little manure water should help them; or rather a top dressing of old well rotted manure. We don't know what the "Excelsior" fertilizer consists of, hence can not advise about it. In the case of hyacinths, tulips, narcissi and the like keeping the earth moist should be enough; at the same time a syringing now and again early in the afternoon in fine weather won't hurt them if they are not in bloom; the same in the case of Harrisii lilies, except that we would syringe them oftener.

2. What kind of bugs? Lilies are a ready prey to greenfly, mealy bugs and red spider; but the mealy bugs only are likely to bother the begonias. Greenfly will succumb to tobacco smoke, tobacco

water or vapor, but the other two insects won't; the mealy bugs have got to be brushed or washed off, and the red spider to be washed off with a sponge and soapy water. The stereotyped advice "sprinkling the plants with water and keeping the atmosphere moist will kill the red spider" is all nonsense. Let it get started once and you can not keep the atmosphere in your conservatory moist enough to kill the pest no matter what people may say or write to the contrary; it takes hard and persistent use of the syringe or hose to dislodge and destroy this insect, so much so that rather than spend time trying to clean common plants like abutilons, carnations, salvias and such susceptible subjects, we would throw them out, and the other plants we would wash with a sponge and soapy water and use the syringe at the same time.

3. The cause is local, and as we have no data to work on we could only guess a reason and it might be wrong and misleading. Tell us what the plants are and the conditions under which they are grown.

PLANTS IN SCHOOL.

Help! if you please. A public school in Chicago—many windows, warm, very dry air, dust, frequent changes in temperature, careless teachers here and there, but a determination to have the windows filled with plants next year. I have "mums" rooting as a starter, and plenty of geranium stock.

1. What geranium is most apt to bloom in winter? 2. Will begonia Vernon be good for north windows? 3. Will seed planted soon make good plants for September next?

4. Will you name three or five kinds of plants hardy enough, which I can raise for next winter to be most attractive? I want plants that do not need to be syringed and fumigated, etc., and have north, south, east and west windows. 5. What palm would do well on a teacher's table out of the sun? A plant in a 5-inch or 6-inch pot does best in window, as such can be carried to warm room on cold night.

6. What plants will make an attractive hanging basket for south window?

7. Will not a shallow tray with 2 inches sand form best resting place for the pots in the window? H. S. T.

Chicago.

1. Either single or double flowered fish, commonly called scarlet, geraniums. The plants should be kept in pots over summer, somewhat dry, and be repotted early in August, to give them an opportunity to get well rooted and ready for blooming when school opens in September or October. Plants lifted from the open ground seldom recover enough to begin blooming before January.

2. No, Vernon is of very little use in winter; get Rubra.

3 and 4. Sweet alyssum and single petunias raised from seed sown in summer will make nice pot plants for fall and winter, so will *Impatiens Sultani*, or you will get bigger plants of it by sowing earlier. Chinese and obconica primroses sown this spring, and cinerarias in summer will also give you nice winter blooming plants that should do well with you in a cool room, but we fear they will need too much attention in their summer stage to be of use to you Really, there are very few plants you can raise from seeds now that will be worth your while for winter flowers. Chrysanthemums are perhaps the best, if the seed is sown now, and the seedlings planted out in summer and lifted and potted in August or September, they will give you a great variety of types and blossoms, but as you say you have plenty of them you would gain nothing by raising more from seed.

5. No palm needs direct sunshine. Among fan palms *Livistona rotundifolia* is the neatest, but the common *Borbonica* is excellent; among feather palms *Cocos Weddeliana* is the prettiest, but *Kentia Belmoreana* or *Areca lutescens* will answer admirably.

6. Single flowered petunias, common red and yellow flowered oxalis, othonna and ivy geraniums for hanging over the sides of the pots and *Impatiens Sultani*, scarlet geraniums, oak and rose geraniums and the like for filling up the middle, Wandering Jew, variegated panicum, German Ivy, English ivy and the other plants so much used for hanging baskets are generally suspended in north or sunless windows so as to give up the sunny windows to blossoming plants.

7. Yes, very well. The dishes generally used are flower pot saucers; they are made a purpose and of every size to suit the pots. The sand in the dishes is unnecessary. In the case of the fibrous rooted flowering plants water should not be allowed to stand in the saucers, but as regards palms, rubber plants and screw pines, plants most used in dwellings in winter, water in the saucer doesn't hurt them, in fact seems to do them good.

GERANIUMS FOR WINTER FLOWERING.

Many of the varieties which are valuable for blooming in the greenhouse in winter do not behave satisfactorily when planted outdoors in summer. The three sections of geraniums we find useful for cutting and decorative work are the zonal, ivy-leaved and scented leaved. In the zonal geranium we have scarlet, crimson, salmon, purple, white and intermediate shades of color. The range of colors in the ivy-leaved section is also large and beautiful; while they have additional charm of their beautiful pendent growth. They are useful for supended baskets, window boxes and conservatory decoration. Even in the parlor and dining room placed on brackets for a short time they come in useful. The scented leaved sorts are grown for their branches, which are cut for mixing with cut flowers, for vases, bouquets, etc., while a single leaf is often used as a background for a blossom for a boutonniere.

CULTURE.—The zonal section we root from cuttings about the middle of July, pot them and grow them on till they get their last shift into 6-inch pots. While outside we keep them in a sunny position, pinch them back and pull the flowers off them till we bring them inside in September. When they fill their pots with roots we give them liquid cow manure. We sometimes pot a few extra specimens in 8-inch pots. We keep them in the sunniest part of the greenhouse, and to keep them flowering well they should have a night temperature of about 58°. The ivy-leaved section we root in March and otherwise treat like the zonals, except that when we bring them in we place them on shelves and let them hang gracefully down; we never stake them. The scented leaved sorts we root in May, pot and plunge outside and keep them on the dry side to prevent them growing too vigorously. The following is a list of some meritorious varieties: Zonals—M. Bruant, double scarlet, good for either bedding or winter flowering; Mr. H. Cannell, double scarlet; B. K. Bliss, Gambetta, Acteon, fine double scarlets. W. P. Simmons, M. Pasteur and Circe are good double flowering crimsons; Gloire de France and M. Presse are double salmon; Jeanne d'Arc, Le Cygne and, probably the best, La Favorite are double white; Gloire Lyonnaise, cherry and scarlet; and Copernia, rose and carmine; and President Dutailly, amaranth, are good. These last three are superlatively beautiful.

Ivy-leaved—Berthelot, magenta; Lavoisier, scarlet; Le Perle, lilac; La Rosiere, soft rose; Emile Lemoine, orange scarlet; Congo, lilac, center rose, edges white; Jeanne d'Arc, white suffused with lavender; and Holly Wreath, variegated foliage, are fine. Scented leaved varieties—Balm, Dr. Livingston, and rose scented (Capitatum) are among the best.

Orange, N. J. WM. FITZWILLIAM.

A LITTLE GREENHOUSE.

Subscriber, St. Louis, says "at the back of my house which faces south a space where I would like to put up a little greenhouse. The length is fourteen feet, the height at the back, because of a window in my house, must be ten feet six inches or thirteen feet three inches, but there is plenty room for width. Advise me about it. Sketch of place enclosed."

The sketch shows the intention to have a lean-to greenhouse built against the brick wall of the dwelling house. Ten and a half feet high at back is enough, make it five feet high in front, of this two and one-half may be of board or brick, and two and one-half feet glass. Have the front bench two and one-third feet high, two feet nine inches wide; path two feet three inches wide; back bench in two stages, the front of which may be eighteen inches wide and four or six inches higher than the front bench, and the other reaching back to the wall, four or six inches higher than the other. Ventilate at the top. The inside of a house should be made according to what one wishes to grow in it and the width of the path according to the freedom of movements one wishes to have.

PALM LEAF TIPS DISEASED.

W. B, Chatham, Ohio, asks:—"What is the matter with the tips of my palm leaves, they always go brown? Do I give too much water or too little or is there any other cause?"

The trouble probably is the tip blight, a fungous disease. The diseased tips can not be cured, but a further spread of the disease may be prevented by dewing or spraying the plants every few weeks with Bordeaux mixture.

POTTING PLANTS.

M. B. W. writes. "It is recommended for almost all plants to pot in small pots when small and repot them as necessary. Is this better for plants generally than to put them into large pots at once?"

Bad watering weakens or kills more potted plants both in the window and greenhouse than any other cause, and next comes over-potting. We like to use moderately small pots—compared to the size of the plants—for all things, and as soon as the plants are well rooted in them repot into pots, one size larger if in the fall season, or one and a half to two sizes larger if the plants are in vigorous health and the season is the spring or summer. Take a geranium for instance: If well rooted in a 4-inch pot in the fall we would shift into a 5-inch pot; if in spring, however, a pot the next size larger would be

DWARF PEAR TREE

used. But bear in mind the small shift is always the safe one. If a plant is slow growing like a daphne, or in delicate health, or rather poorly rooted be sure you don't overpot it. Vigorous growers and gross feeders as callas, marguerites, cinerarias, stevias, chrysanthemums and so on, if in good condition, may get a two sizes larger shift, that is from a 4-inch to a 6-inch pot. But there is no rigid rule.

LOPEZIA CORONATA.

This is a perpetual blooming, slender, but bushy and vigorous little plant from Mexico, that is very useful for hanging baskets, window boxes and brackets, as well as for window or greenhouse pot plants. Its flowers are small, rose purple, exceedingly numerous and produced abundantly in winter, but are of no use for cutting. In form the blooms looks like a mosquito, hence it is commonly called "mosquito plant." [By right of priority that name belongs to *Vincetoxicum acuminatum*, a hardy herbaceous perennial from Japan.—ED.] We raise fresh plants from cuttings every year; for furnishing baskets and window boxes in spring we strike the cuttings in January. For pot plants for next winter's blooming we root the cuttings in March, pot them and keep shifting them into larger pots as they require it till a 7 inch size is reached, which is big enough for them to bloom in. In summer we plunge the pots in a bed of coal ashes, taking care to turn the pot occasionally to break the roots that may be pushing through the hole into the ground beneath. Keep it pinched back during summer, then take a piece of stout wire four feet long, and double it like an inverted U, put this in the pot over the plant, and with fine wire or string run back and forth across between the two wires and make a trellis to train the lopezia on. WM. FITZWILLIAM.

Orange, N. J.

COPPER COLORED CRUST ON POTS. Mrs. A. M. D.—Please send us a bit of the pot on which it is growing.

Aquatics.

GOOD TENDER WATER LILIES.

Among tender water lilies *Nymphæa Devoniensis* is a very free bloomer, so is *N. dentata*, but I find *dentata* wants more room to do well, and *Zanzibarensis rosea* and *azurea* are very free blooming and do well in tubs. All of these varieties are in bloom here every week in the summer. *Nymphæa Mexicana* is a very rich yellow and a free bloomer if confined; it must be root bound to get the best results in flowers. I have a new seedling from Washington, a light pink night bloomer, that is doing fine. By the way the tender lilies must not be put out until the last week in May, and if they are strong growing bulbs the first week in June is good time. JOHN MCELVERY.

Flatbush, L. I.

The Fruit Garden.

DWARF PEAR TREES.

While standard pear trees bear the heaviest crops of fruit dwarf trees are useful for small gardens and to plant in borders in large ones. Our experience with dwarf pear trees has been so favorable that we have no hesitation in recommending them to our readers. Our illustration, which is engraved from a photograph taken at Dosoris early last October, shows a dwarf tree of Bosc (Beurre Bosc) in full fruit. We would have picked the fruit before then had the photographer got here sooner to take the picture, so a good many of the pears had fallen off before that time; enough are left, however, to show what a dwarf tree can do.

Pear trees love good ground, if a little inclined to clayey so much the better, but any fair garden soil will suit them. This applies to both standards and dwarfs. Don't consider that dwarfing a tree is an excuse for crowding a lot of them into a small space, for overcrowding is very injurious to them. Nine or ten feet apart is close enough to set them.

We can not do better than repeat the selection we gave May 1 last, page 277, namely, Margaret, Giffard, Clapp's Favorite, Bartlett, Seckel, Hardy, Sheldon, Bosc, Anjou. All are A1 pears and do well as dwarfs.

STRAWBERRIES.

The "Biggle Berry Book" published by the *Farm Journal*, Philadelphia, is something like that paper itself—a symposium of condensed facts. As regards strawberries it give the following "brief analysis of varieties."

LARGE FRUITED VARIETIES.—Sharpless, Greenville, Belmont, Saunders, Crawford, Edgar Queen, Bubach, Jucunda Improved, Gandy, Leader, Jessie, Brandywine, Felton, Mary, Iowa Beauty and Wm. Belt.

EARLY.—Leader, Beder Wood, Crescent, Michel's Early, Meek's Early, Dayton and Haverland.

LATE.—Gandy, Eureka, Glendale, Parker Earle, Windsor, Equinox and Timbrell.

FINE QUALITY.—Pearl, Banquet, Cumberland, Crawford, Belmont, Dayton, Meek's Early and Iowa Beauty.

FOR MARKET.—Pearl, Gandy, Haverland, Saunders, Bubach, Crescent, Greenville, Parker Earle, Warfield, Leader, Muskingum, Lovett and Brandywine.

PEAR TREES cost more than apple trees, hence, says one of our western readers, the pear tree is a comparatively neglected fruit. He cries give us more pears, plant more pear trees. Pear trees commence bearing earlier than do apple trees, and they have no off year; they bear full every year. The pear is a delightful fruit, and with a few trees of different sorts we can have pears on our table every day in the year from July till Christmas, beginning with Doyenne d'Ete and finishing with Anjou, or with a little pains prolong the supply with other varieties.

THE KEIFFER PEAR TREE IN IOWA.—A reader in Iowa writes us that he planted a Keiffer in 1886, and it is now 20 feet high with a stem 6 inches in diameter, and it bears lots of fruit. It began bearing the third year after being planted, and the tree is both ornamental and healthy and quite hardy.

CUT BLOOMS of the new rose Mrs. Pierpont Morgan were sent from New Jersey to England last month and exhibited before the Royal Horticultural Society of London. Considering their trans-Atlantic voyage the roses were in good condition and retained their tea fragrance to a remarkable degree. They were awarded a first-class certificate.

GARDENING

WILLIAM FALCONER, Editor.

PUBLISHED THE 1ST AND 15TH OF EACH MONTH
— BY —
THE GARDENING COMPANY,
Monon Building, CHICAGO.

Subscription Price, $2.00 a Year—24 Numbers. Advertising rates on application.

Entered at Chicago postoffice as second-class matter.

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All communications relating to subscriptions, advertisements and other business matters should be addressed to The Gardening Company, Monon Building, Chicago, and all matters pertaining to the editorial department of the paper should be addressed to the Editor of GARDENING, Glen Cove, N. Y.

GARDENING is gotten up for its readers and in their interest, and it behooves you, one and all, to make it interesting. If it does not exactly suit your case, please write and tell us what you want. It is our desire to help you.

ASK ANY QUESTIONS you please about plants, flowers, fruits, vegetables or other practical gardening matters. We will take pleasure in answering them.

SEND US NOTES of your experience in gardening in any line; tell us of your successes that others may be enlightened and encouraged, and of your failures, perhaps we can help you.

SEND US PHOTOGRAPHS OR SKETCHES of your flowers, gardens, greenhouses, fruits, vegetables, or horticultural appliances that we may have them engraved for GARDENING.

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THE EFFECT OF THE WINTER ON EVERGREENS.—The winter so far has been unusually severe and continuous and its effect on evergreens is likely to be serious. We notice—and it is early to notice such things—that the foliage of several firs, spruces, yews and cephalotaxus is already considerably browned, and some retinosporas, notably *R. pisifera* and its varieties, have that dry curled appearance which practical men dread so much. The exceedingly dry summer and dry fall of last year have also much to do in rendering the evergreens an easy prey to the destructive power of a long hard winter.

ARE WE CIVILIZED? In an editorial note in the *Journal of Horticulture* we read: "With the increasing development of civilization in the States there is a pressing demand for lawns such as adorn our country residences and suburban villas."

PEAT MOSS MANURE FOR MUSHROOMS.—What is known as German peat moss compressed into bales is now largely used for bedding horses in open or box stalls, and capital bedding it makes. And as it remains in the stalls under the horses' feet for days or weeks sometimes it gets well soaked with stable moisture and droppings, most desirable material for mushrooms. But taking it all in all it is poor stuff for mushrooms. If mixed with loam or chopped up sods mushrooms will grow fairly well in it; we have even seen them do fairly well in it of itself, but we have also seen many failures in beds made of peat moss manure. Better stick to the old kind of stable manure.

TWO NEW BOOKS come to us from W. Atlee Burpee & Co., seedsmen, Philadelphia. One is named "Cabbage and Cauliflower for Profit," and costs 50 cents; the other is "Potatoes for Profit," and costs 30 cents. The first named contains 122 pages, the other 84 pages, and both are freely illustrated. Each book handles its subject in a masterly way and deals with the plain practical facts that every cultivator wants to know. They tell us what sorts to grow and how to grow them in a way one can make money out of them. All details of cultivation, harvesting, wintering and marketing are given, and the drawbacks as insect pests and fungus diseases are dealt with, and the pointed illustrations render the text doubly helpful.

WILLOW ROOTS FOR ORCHID GROWING.—In the *Orchid Review* Mr. Annandale, a Scotch gentleman and orchid fancier, tells us that having poor peat for orchids, he tried growing them on willow roots, and has had great success. "I have a number of willow trees whose roots find their way through the bank into a small stream, and for a number of years these roots have been cut to prevent them choking the flow of water. * * I suggested that he (his gardener) try the willow roots, and now, after two years' trial, he is satisfied that no better substance could be obtained, as the orchids have thriven in a way they never did previously." The advantages are perfect drainage, and the fibre does not get sour or rotten, and the orchid roots penetrate it freely and take to it kindly.

IN THE FLOWER POT BUSINESS 130 YEARS.—The Centenary Club in Philadelphia consists of firms that have had an uninterrupted ancestral record of one hundred years or more in the same business. Up to the present time only thirty-one firms in the United States have been found that can claim membership and of these twenty-one are in the state of Pennsylvania. One of the other ten is A. H. Hews & Co., the flower pot manufacturers at Cambridge, Mass. The great grandfather of the present A. H. Hews began the manufacture of flower pots in Massachusetts some time previous to 1765, and the business has continued uninterruptedly in the same family ever since. Some idea of the recent progress of ornamental gardening in America may be obtained from the flower pot business. In a paper read before the Mass. Hort. Society the other day Mr. Hews tells us that in 1869 his firm made 700,000 pots, but in 1894 they made 7,000,000. For a hundred years prior to 1865 comparatively little progress had been made in the preparation of the clay or methods of manufacture of the pots. Up to 1863 flower pots had always been made by hand, on a potter's wheel, then machinery was invented and introduced by which small pots, up to 5-inch size, were made, and improvements have so continued that now all pots up to 12-inch are made by machinery; over that size, however, they are made by hand as in former years.

WINTER PROTECTION—NOW IS THE TIME OF DANGER.—Ordinarily hardy plants as roses, bamboos, raspberry bushes, grape vines, strawberries, rhododendrons, and the like, are seldom injured by frost in the early part of the winter or so long as the winter continues steadily cold; but the moment after the middle of February that there comes a warm break in the weather danger sets in. Even if you neglected to protect anything before the winter set in attend to it now. If you haven't done it before scatter some straw, corn stalks, littery manure or sedge over the strawberry plants. Mulch the rose bushes with something of the same sort; if you can not protect the tops at least save the roots. A few boards to break the wind, a light wooden frame and evergreen branches to save the shrubs, a piece of burlap or coarse sacking tied around some of the more tender shrubs to exclude sunshine and help prevent an easy tendency to freezing and thawing will be of great avail. Do your best to prevent the plants starting into growth early; the earlier they start the more liable they are to injury by a cold snap. And if you have a choice little evergreen that you are proud of, say a thujopsis, yew, juniper or rare arbor vitæ, a little pains to protect it from bright sunshine for the next two months will probably be worth your while. Don't crow over the earliness of your snowdrops, crocuses, squills, irises and other early gems; rather than aid in hastening their coming it may be more to your advantage to pile snow on to the beds and borders and tramp it down there to delay them in starting, then when they do appear they will probably be more perfect and beautiful than if hurried out of bed by the coaxing influence of a few warm days, and then scorched by the merciless breath of a fierce norther. If you have isolated plants of nice rhododendrons, azaleas or other choice shrubs or rose bushes that are not too big tie the branches a little together and invert a barrel or dry goods box over them, making a hole near the top on the east side to admit light enough to keep them hardy.

CAN'T GET THE SEEDS.

P. B., Washington, D. C., notes what we said about raising ferdinandia and wigandia from seed, page 148, but complains that he cannot find seed of them advertised in any American catalogue that he gets. He adds "I would like to raise *Ferdinandia eminens, Solanum robustum*, etc."

Our seedsmen don't list these things because there is no demand for them. Some of our readers may ask, what are these plants and what are they good for? They are large, bold, highly ornamental leaved plants much used in the pretentious gardens of Europe in subtropical gardening effects. We use castor beans, cannas, and the like for a similar purpose, but we are considerably behind in this style of gardening. We are glad, however, to find that our progressive gardeners are exercising themselves in it. If you want to try it this year make out your list of seeds at once, and have your seedsman send to Europe for them or send there yourself and get them. And then for next year's garden make out your list in sum-

CHALLENGE BLACK WAX BEAN

mer and give it to your seedsman, who will get the seeds in Europe when he orders his stock of other seeds.

The Vegetable Garden.

A LIST OF VEGETABLES.

Some kinds of vegetables may do better in one part of the country than in another, some will do well in one soil but not as well in another, and folks' tastes about vegetables differ just as they do about flowers or clothes. While we are always getting a few new varieties of vegetables, we should depend upon well-tried standard sorts for our main crops, taking some of the new ones on probation, and these well-tried sorts are generally good all over the country. If a variety is real good all of the prominent seedsmen will catalogue it, there is no monopoly of or patent on tested vegetables

ASPARAGUS.—Colossal is large and good. Sow in a row just as soon as the ground is open.

GLOBE ARTICHOKE.—Get French or Green Globe, but remember that there is a good deal of difference in the quality of the individuals. If raised early they may flower the first year, but are sure to the second season.

SNAP BEANS.—Valentine and Refugee are good reliable old green-podded sorts. Refugee Wax and Challenge Black Wax are fine wax varieties. There is a new Valentine Wax that is worth trying as a novelty.

LIMA BEANS.—Get Henderson's Dwarf to fill the gap between peas and Limas. Then Dreer's and Burpee's dwarf Limas to sow in rows 2½ feet apart; but if you want to use poles get Dreer's Lima or Challenger.

BEETS—Edmond's is a fine dark beet, and Eclipse an excellent general crop variety, not as dark as the other. It is a common thing to sow early vegetables in light, dryish soil, but we find that in the case of both beets and carrots, that even the early crops like good land.

BRUSSELS SPROUTS.—Try Improved half Dwarf. And sow the seed a month earlier than you do your winter cabbage.

CARROTS.—A row of Early Horn for early, and the balance of Half-long Stump rooted or Chantenay. Sow two or three times during the summer, so as to have tender roots.

CABBAGE.—Early Jersey Wakefield for early and Early Summer or All-Seasons for a succession bring us up to frost. For the winter crop grow Savoys, say Drumhead Savoy, they are far finer in quality than plain cabbage.

CAULIFLOWER.—What is sold as Snowball is as good as any for most anytime of the year; add Gilt-edge by way of variety.

CELERY.—A little White Plume or Golden self-blanching for early; but for main crop depend on Perfection Heartwell and Giant Paschal.

CORN.—Get Cory for early and Squantum and Country Gentleman for summer, and Stowell's Evergreen for late. The Cory isn't of good quality, no very early corn is.

CUCUMBER—Green Prolific for pickles. And Improved White Spine for table. The young cucumbers of the last may also be picked for pickles.

DANDELION.—Large-leaved. This is our first green vegetable in spring. It never blooms the first year from seed, and if we dig up the roots and throw them away after we cut the leaves, they will never become a weed.

EGG PLANT.—New York Improved.

ENDIVE—Green Curled. We ought to grow more of this vegetable. Sow it about the middle of July for heads in October and November, treating it as you would lettuce.

KALE.—Curled Dwarf Green Scotch is good. Sow in June, and treat as cabbage. It is a very nice vegetable in winter, a good change from cabbage and a substitute for spinach. What we call "sprouts" or German kale we sow about the first of September and save over winter as we would spinach to cut in spring.

LETTUCES.—Improved Boston Market for hotbeds and early planting out of doors. Trianon Cos for spring and early summer; and Deacon, Thorburn's Market Gardeners' and Salamander for summer. It is easy enough to get good lettuces up till June, but between the middle of July and the end of August the lettuce question is a troublesome one. The plants hardly get to hearting size when they "bolt" and the best of them at that time is poor and tough in quality. In the cooler northern states, and high elevations, this isn't so, but here on Long Island good lettuces in the hot summer months are beyond us.

LEEKS.—American Flag.

MUSK MELONS.—Surprise, Emerald Gem, Osage, and Long Island Beauty. Both the musk and water melon question is another vexed one with us, and we have got to sow more seeds and more kinds than seems reasonable in order to get enough melons for use; a variety that was very good with us last year may be worthless this season. In fact several of the kinds common in catalogues have never given us a melon fit to eat.

WATER MELONS.—Cuban Queen is our most reliable sort, and Hungarian Honey was fine with us last year. We always get nice Ice Cream melons but people don't like their white seeds. Twenty other sorts were more or less a failure. Land rich, sandy, weather warm and exceedingly dry.

ONIONS love moist land. Sow Prizetaker now in the greenhouse, or a little later in a hotbed to transplant out of doors in April. And get yellow Danvers, Red Wethersfield, and Southport White Globe for sowing out of doors.

PARSLEY.—Moss Curled.

PARSNIPS.—Hollow Crown.

PEAS.—Get some Earliest of All or Best Early for the first crop only To immediately succeed that Alpha is a very sweet pea, then comes Advancer, Heroine and Stratagem. All of these can be grown without stakes, at the same time staking improves them. American Wonder and Premium Gem are two fine dwarf peas that need no staking; grow them in good ground. Champion of England is perfection in quality of peas, and Telephone is fine, but both should get the support of stakes or wire netting.

PUMPKIN.—Cheese.

PEPPER.—Oxheart, Ruby King.

RADISH.—French Breakfast as a turnip radish, and Chartier as a long rooted sort. Turnip radishes should be used as soon as they are big enough to eat, for they don't last but a few days before getting foggy in the heart.

SALSIFY.—Sandwich Islands.

SPINACH.—Improved Thick-leaf.

SQUASH.—Summer Crookneck and Golden Custard for summer, and Boston Marrow and Hubbard for winter.

TOMATO.—Most any one of the twenty or more sorts in common cultivation will give you good and plenty tomatoes. Try Stone, Matchless or Perfection.

TURNIP.—Purple-top Strap-leaf for early and Purple-top White Globe for general crop. The early Milan is too biting.

Catalogues.

The Storrs & Harrison Co., Painesville, Ohio, flower and vegetable seeds, greenhouse plants, roses, hardy fruits and summer flowering bulbs.

The Lovett Co., Little Silver, N. J., flower and vegetable seeds, aquatics, hardy plants and fruits.

H. W. Buckbee, Rockford, Ill., vegetable and flower seeds, greenhouse plants and summer bulbs.

Coe & Converse, Fort Atkinson, Wis., small and tree fruits, roses and hardy ornamental trees and shrubs.

W. F. Allen, Jr., Salisbury, Md., a catalogue entirely devoted to strawberries.

E. E. Burwell, New Haven, Conn., vegetable and flower seed.

C. E. Whitten, Bridgeman, Mich., small fruits in variety.

D. B. Garvin & Son, Wheeling, W. Va., small and tree fruits.

O. A. E. Baldwin, Bridgman, Mich., small fruits and seed potatoes.

M. Crawford, Cuyahoga Falls, O., strawberries and summer bulbs.

W. A. Manda, S. Orange, N. J., flower and vegetable seeds, and plants.

L. L. Olds, Clinton, Wis, potatoes.

J. Breck & Son, Boston, Mass., flower and vegetable seeds.

Pike & Ellsworth, Jessamine, Fla., seeds and plants.

Weeber & Don, Chambers street, New York, seeds, plants and bulbs.

G. L. Tabor, Glen St. Mary, Fla., fruit and ornamental trees.

J. Wilkinson Elliott, landscape architect, Pittsburg, Pa., hardy trees and shrubs, herbaceous perennials, lilies, gladioli, etc.

Wm. Toole, Baraboo, Wis., pansies and other flower seeds.

R. & J. Farquhar & Co., S. Market street, Boston. Flower and vegetable seeds, plants, etc.

THE

Cottage Gardens,

QUEENS, N. Y.

C. W. WARD, Manager.

WHOLESALE GROWERS OF

Carnations
Cannas
Geraniums
AND
Orchids.

New, Rare and Beautiful Plants

STROBILANTHES DYERIANUS. This is the most valuable novelty that has been introduced for years. For bedding is superior to the finest coleus; withstands hot sun and dry weather better.

Spiræa "Anthony Waterer," flowers rich crimson.

Lord Penzance's new hybrid Sweet Briar.

A large collection of rare hothouse and greenhouse plants, carefully grown, at low rates.

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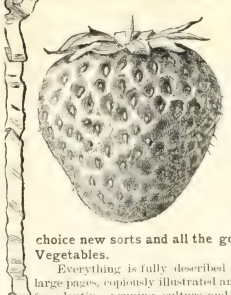

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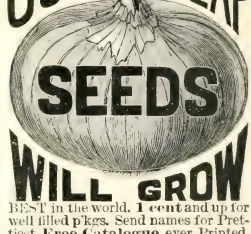

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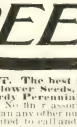

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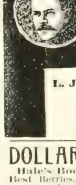
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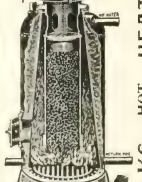
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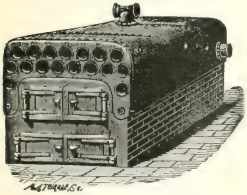

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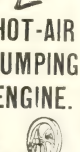

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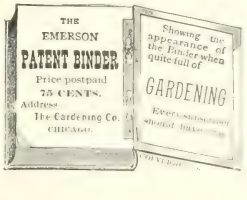

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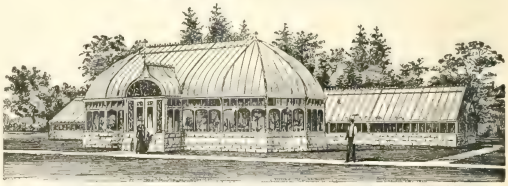

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GARDENING

Vol. III. $2.00 A YEAR. 24 NUMBERS. CHICAGO, MARCH 1, 1895. SINGLE COPY 10 CENTS. No. 60.

PICEA EXCELSA VAR ELATA

Trees and Shrubs.

PARSONS ELATA SPRUCE AT DOSORIS.

As explained in an editorial note, page 184, by a most unfortunate mistake the above heading appeared under our front page picture of last issue (page 161). The picture then shown was one of the pendulous European silver firs (*Abies pectinata* var. *pendula*). The above illustration shows the true elata spruce. It was described in full in last issue, page 162.

THE PENDULOUS EUROPEAN SILVER FIR.

(*Abies pectinata* var. *pendula*.)

This is the tree which was illustrated on the front page (161) of last issue of GARDENING. One might not call it beautiful but it certainly is very striking. It is growing on a gentle slope in light sandy land, enriched at the surface and mulched with seaside sedge in summer. On the right hand side of it is a pendulous Japanese cherry tree (*Prunus pendula*), behind it are Japanese maples, and at the left a handsome specimen of *Retinospora filifera pendula*. This pendulous fir tree is now twenty-four feet high and perhaps eighteen or twenty years old. It was grafted at the ground level, and its branches droop from there up without having a bit of bare stem. From its infancy it never had a stake or other support of the kind, and we have never touched it with a pruning knife or shears. Its branches hang down close to the trunk and overlap each other quite thickly; the foliage is a deep bright green, always fresh and beautiful. Indeed this drooping tree behaves better at Dosoris than does the typical *A. pectinata*. It is a matter of fancy whether one plants this sort of tree or not; a specimen here and there is very well, but several of them in a garden would not be considered in good taste. It is perfectly hardy here.

SHRUBS FOR UTAH.

F. A., Salt Lake City, writes: "1. On the north of my house is an alley 12x50 feet which I wish to convert into a shrubbery border. A picket fence divides this strip from the neighbor's broad lawn. There are no large trees to interfere. There is plenty of air and light, but sun only early in the morning. My desire is to grow flowering shrubs, particularly a variety of lilacs, and small trees, or rather any trees that may be grown in so small a space. 2. Are there any varieties of magnolia that will bloom in this climate? 3. Is the Russian olive a desirable tree?"

1. First, unfasten that strip of ground all over at least two feet deep, keeping the good soil on top and the poor soil in the bottom as before, then mark it off with stakes for planting. Now it is a question of water. If your ground gets as dry as Sahara in summer nothing will do well in it, but if you can give it lots of water in the dry season and mulch it to retain the moisture you can grow lots of shrubs notwithstanding your hot summers. Plant the larger subjects at the back, the lesser shrubs in front, many bulbs and hardy perennials between the bushes, and vines against the fence. As vines Japanese honeysuckles will do for the coolest part, and *Clematis coccinea*, *Flammula* and *paniculata* for the rest. Small trees to set next the fence and about twelve feet asunder may be tree lilacs (*Syringa Japonica* and *S. Pekinensis*), flowering dogwood, American red bud, European burning bush. As large plants to set in front, between them use lilacs Frau Emma Damman and Marie Legraye, white, and Chas X, Souv. de L. Spath and Philemon, purple; *Exochorda grandiflora*, American snowball, fragrant and large flowered syringas (*Philadelphus coronarius* and *P. grandiflorus*), Chinese tamarix, white flowered altheas (*totus-albus*), Tartarian bush honeysuckles. In front of them have red and white *Rosa rugosa*, *Hydrangea paniculata grandiflora*, Van Houtte's spiræa, *Deutzia crenata* and purple leaved barberry. You can not use all of these in so small a space, merely choose and use which ones you like best. In planting these don't crowd them unless you intend in a year or two to chop out a lot of them to give the remaining ones more room. Scattered near the front you may plant lots of grape hyacinths, narcissus and lilies, and bell lily of the valley spread at will among the bushes. Considering the rather unless situation a row of white flowered funkia would make a very pretty edging to that shrubbery belt. But remember, if you want thrifty, healthy shrubs you must not spare the water in summer.

2. All magnolias love good moist ground, give them that and you should be able to grow most any of them. Try *M. stellata*, small, lovely and earliest of all; *M. conspicua*, the white Yulan; *M. Soulangeana*, white and purple, a hybrid, to begin with.

3. Yes, a beautiful small tree, and well adapted for the west.

FINER HOLLY TREES.

I think Mr. Giles Leahy, who writes of "The Finest Holly Tree" in GARDENING, page 150, cannot be familiar with holly trees in general when he asks if any of your readers "know of a finer holly?" than the one he describes, meaning, I suppose also, a larger holly, as he speaks much of its size. I am familiar with the one near Assateague Light House, as Chincoteague is a favorite fishing and shooting ground of mine.

Fifteen feet from the dining-room window of my country house, "Marietta," its branches brushing the walls of the house, stands a holly sixteen inches in the trunk eight feet from the ground, with its top on even terms with the ridge of the roof. As the front of the house is half a basement, two full floors and attic above ground—the basement five feet, the first floor eleven, the second floor ten and the attic ten feet (to the ridge pole) making, with the joist spaces, thirty-nine feet, I judge the holly to be quite that much in height. Seventy-five feet from this one stands its companion, a *little larger* in every way and about seven or eight feet taller. These trees are truly a picture till about mid-winter, especially so when tufts of white snow rest on the coral red of the bunches of berries and the dark glossy green of the leaves. After mid-winter, particularly when much snow has fallen, the trees are completely denuded of their berries by the robins, jay birds and a pair of English mocking birds that live with us the year round.

But at a neighboring place to me, "Bel-Air," the former residence of the late Gov. Ogle of Maryland, there were some hollies, a row of six or eight of them, that I am sure would have astonished Mr. Leahy. I say "were" because after the war the place changed hands, like many others in the county, and the new tenant—God save the mark!—put his axe to them and cut them down! These trees were certainly half as large again as mine, in every way, and were truly giants of their kind as far as my experience goes. If desired to do so by the curious I could measure their stumps, which yet remain in the ground, and which I am sure are not less than two, but nearer two and a half feet in diameter.

I may add that in front of my house are also three pecan trees of unusual size for this locality—two of them measuring two feet in the butt, with their tops high above the large black walnuts near them. These are grand and beautiful shade trees and their long, lithe limbs, swaying in the wind, are a fascinating sight during a summer's storm. They are well draped in their abundant foliage while yet most other trees are in bud, and retain their leaves in the fall after most other trees are bare. They nut quite freely.

GABRIEL DU VAL.

Prince George's Co. Md.

EVERGREEN FOR WINDBREAK.

J. E. P., Moosup, Conn., asks: "What evergreen will succeed best, as a windbreak, on dry soil? Location, a hill-top, with two feet of sandy loam on a ledge. Oak and hickory flourish on same land. Will hemlock spruce do well under above circumstances?"

Austrian pine. Be sure to dig deep wide holes for it and fill them up again to the required depth before planting. Set out small trees, say two feet or under, because in exposed places the wind, the first winter after planting, is apt to play havoc among tall open plants. As regards the hemlock look around among your neighbors, if it does well well with them in similar places, you may try it; but although so hardy and so beautiful it often is uncertain.

PRUNING AN ARBOR VITAE HEDGE.

I would suggest that your Michigan correspondent, page 150, cut the main stems three-quarters through, then bend the tops down horizontally, leaving a good portion of the green leafy growths to carry up sap. The stems will then sprout below the cut, and they might not if the tops are cut clean of. In a year or two cut the tops clean away. All arbor vitæs succeed with this treatment, but pines or firs don't. JAMES STEWART.

Memphis, Tenn.

XANTHOCERAS SORBIFOLIA.—Under date of February 20 W. S., Hartford, Conn., writes: "Our gardens are yet under two feet deep of snow, and under it snugly covered up with straw are three little xanthoceras plants raised from seeds you kindly sent me last year. I fear their loss. Then we had 10 below zero. But I had not the heart to pull them up and store them in the cellar last fall." The little plants are probably all right, and a great deal better off than they would have been in your cellar.

EUCALYPTUS GLOBULUS.—A correspondent asks if this tree is hardy in New York. We answer: No, nor anywhere else in the northern states. It makes a magnificent shade tree in California. We grow it from seed every year, sowing the seed in a warm greenhouse in February or March as stated page 148. The seed is cheap and germinates easily.

A BOOK ABOUT SHRUBS.—Edgemoor, Chicago, asks: "Can you inform me where a book containing colored illustrations of ornamental shrubs can be procured?" There is no modern book on the subject.

The Flower Garden.

SOME HARDY PLANTS—NOVELTIES.

For the benefit of amateurs, who will doubtless try in large numbers the following advertised plants this season, will you kindly state if they will bloom well in a bed receiving only about three or four hours morning sunlight. Zinnias, marigolds and alyssum did well in the same position last year:

Kosteletzkya Virginica.
Caryopteris Mastacanthus.
Boltonia latisquama.
Anthemis tinctoria.
Lychnis Viscaria splendens fl. pl.
Begonia Evansiana.
Lychnis Flos-cuculi fl. pl.
Hedychium coronarium.
Echinops exaltatus.
Hypericum Moserianum.

New York. L. C. L. J.

We believe every one of them will live and do well in the bed you have. But remember the hedychium isn't hardy. As some of our readers may want to know something more about these plants we have written the following notes, for apart from the kosteletzkya we have grown them all.

KOSTELETZKYA VIRGINICA, or Virginia hibiscus, is a stout, hardy, perennial native plant found in moist or marshy ground from New York southward. As a cultivated plant, however, we know nothing about it.

CARYOPTERIS MASTACANTHUS is a Chinese plant and old in cultivation, but so little known that the florists are justified in re-introducing it as a novelty. It grows freely, making bushes 2 feet or more high. It begins to blossom in late summer or early fall, continuing in bloom till frost comes. The flowers are pale violet blue, small, and borne in axillary bunches running nearly the full length of the wand-like shoots. While quite pretty

A RUSTIC SUMMER HOUSE

as a garden plant it isn't one that will be in demand for cut flowers, the blossoms are not showy and the color is not telling. It is, apparently, hardy in New York, but how reliably so has yet to be tested. It is a worthy plant and you should get it.

BOLTONIA LATISQUAMA is a tall growing, hardy, herbaceous perennial, closely resembling an elegant rose-purple flowering wild aster. We have had it 7 feet high. It is perfectly hardy, and in good soil with good care will give you much pleasure. There is nothing weedy or coarse looking about it.

ANTHEMIS TINCTORIA is an old garden herbaceous plant, perfectly hardy and of the easiest cultivation. It makes bushy yarrow or chamomile-like clumps 18 or 20 inches high, and in summer bears a great profusion of bright yellow daisy-like flowers, and a few scattering blooms during the rest of the season. While the bright yellow one is the best there are forms of it having pale or dingy yellow blossoms. Although it is quite pretty as a border plant we seldom use it as cut flowers.

LYCHNIS VISCARIA SPLENDENS FL. PL.—An old and very beautiful tufted, hardy herbaceous perennial, of the easiest cultivation, and sure and free blooming. Its flowers are double, of good size and set thickly on stems that rise 12 to 16 inches in height; the color is deep, bright, rosered but with a purplish tone that some people object to.

BEGONIA EVANSIANA, also known as *B. discolor* and *B. grandis*, and generally called the hardy begonia, is a real pretty and desirable species from China. It is herbaceous and deciduous, dying down in fall and coming up again in spring, and grows to a height of about 18 inches to 2 feet. The leaves are oblique, sub-cordate, green above and red beneath, and during the summer lots of little bulblets or tubers are borne at the axils of the leaves, and from them the species is propagated. The flowers are rose colored and pretty. Planted out in the open garden in summer, in a moistish, sheltered north or east facing nook it thrives luxuriantly; and if the border is heavily mulched over winter the begonia will appear in abundance the following spring. Without a winter mulch it has not proved hardy with us. It has naturalized itself as a weed in old fashioned greenhouses.

LYCHNIS FLOS-CUCULI FL. PL. is the double flowered ragged robin that one often finds in farm and other old gardens in the country. It is a hardy perennial, easy to grow and a free bloomer, with red flowers. Although pretty enough as a border plant, it isn't anything one would hanker after very much.

HEDYCHIUM CORONARIUM, known as the Indian Garland Flower, comes from the East Indies and is a tender or greenhouse plant here. But it may be treated as we do cannas. In fact its root stocks and manner of growth are suggestive of the canna, and some of our western friends call it the white canna. From the end of every growth in summer is produced a spike of showy lily-suggestive white fragrant flowers. It is really a desirable plant and easy to grow. And in a pot or tub planted in rich turfy soil with good drainage, and given plenty of water, it makes a bold and handsome plant 4 or 5 feet high, sometimes more.

ECHINOPS EXALTATUS (ought to be *E. commutatus*) is one of the globe thistles. There are several species, mostly indigenous in southern and eastern Europe, and cultivated in gardens for their bold bearing. This species is one of the commonest and biggest. It has run wild and become a weed in the borders at Dosoris, where mature clumps are 7 to 8 feet high. They have thistle-like foliage, and much-branched stiff flower stems bearing large, globular, silvery gray or bluish heads of flowers. Though striking they are not showy. Get *E. Ruthenicus* instead of *E. exaltatus*; it is a smaller and much prettier species.

HYPERICUM MOSERIANUM is a gem in its way. From June till October it was in bloom every day of the year with us last summer, and its flowers are large, bright yellow and pretty. The plant grows well, and although really of a shrubby nature we regard it more as a herbaceous perennial. While we have every reason to believe that it is hardy at New York, for safety's sake, don't neglect to mulch it well with tree leaves or litter over winter.

A RUSTIC SUMMER HOUSE.

Our illustration is engraved from a photograph of a rustic summer house and bridge planned and made by Major James K. Schrimshaw in northern Alabama. The design is plain enough to any one, and the structure seems to be substantial enough for the purpose. Of course it was never meant to be left in its nakedness like this, but to be covered with appropriate vines. In its bare condition, however, it is more suggestive than it would be if covered with foliage, and we can see the detail in building to better advantage. Building elaborate and expensive summer houses and then covering them with vines serves no useful or tasteful purpose; a rustic house like this made of durable material is just as good, for it will last as long and support the vines as well as the other. And it is within the reach of every one.

About the best thing to use for this work is red cedar, white cedar, tamarack and cypress. If they are too stout to use singly get them cut lengthwise through the middle at the mill, and in order to have the wood retain its soundness for many years peel the young trees before using them.

What vines to use in covering a summer house like this is a matter of fancy or location. Chinese wistaria, Japanese

wistaria, trumpet creeper and actinidia will run any height; but while the first three are showy in bloom the last named is not. The Chinese bignonia (*B. grandiflora*), running honeysuckles, climbing waxwork, white fleecy clematis and some others would do very well where they didn't have to get up on the roof, but both akebia and Virginia creeper would run up there with very little trouble.

VINES FOR SUMMER HOUSE.

E. H. J., Spokane, Wash., writes: "I purpose building on my country place a summer house or arbor 16 feet in diameter, octagonal in shape. Please inform me what climbers to plant so as to thoroughly cover both sides and roof with vines, and how far apart to plant them. I wish as great a variety as possible."

To run around the eaves and spread over the roof the Chinese wistaria is good. The trumpet vine can be led up to do the same thing. Both the akebia and actinidia will grow fast and run over the roof, so will the silk vine, but they haven't the massive fullness of the wistaria, trumpet vine or "flowering" grape. You must depend upon your angle or corner posts for variety; against each of them, or if you prefer it in the middle between the posts, plant a strong root of a vine that will grow thick from the ground up, for instance Hall's honeysuckle, the variegated *Vitis heterophylla*, and several clematises as *Flammula*, *montana grandiflora* and *paniculata* among the fleecy white ones, and Henryi and Jackmannii among the large flowered sorts. A big tuber of cinnamon vine planted in the same hole as the wistaria will clothe the latter's stem, and the same may be said of *Ipomæa pandurata*, but you must have a big root of the last named else it is a slow plant. And if you had patience to wait for it a good plant of climbing hydrangea pinned to one of the corners would, after a few years, be a permanent ornament. Plant one or two strong plants at each corner. The Virginia creeper would cover the house very quickly and prettily, but you may think it too common.

THE TWELVE BEST CANNAS.

Than cannas as summer blooming plants there is nothing more effective, particularly when planted in large masses. Since the introduction of Madame Crozy a few years ago, constant improvements have been made, and there is an endless variation when grown from seed. Until within a year or two the best of the varieties had been produced in France by M. Crozy, who sent out Mme. Crozy. His success in raising seedlings has stimulated growers all over the world, and the result has been a wonderful improvement in cannas during the last few years. The best varieties of one year are being rapidly superseded by marked improvements the next, so that varieties which were valuable a year or two ago are being superseded by new and improved sorts.

We have tested cannas very exhaustively, and believe the twelve varieties named below come to be as near the very best twelve sorts in cultivation as it is possible to name at this writing. Half of them are new seedlings which will be offered this year for the first time; and half the most distinct of the previous introductions.

ELDORADO.—Undoubtedly this is the best yellow canna; flower of the largest size, habit perfect. In every way it is as good as the best improved red varieties. A good variety in yellow has been lacking until the introduction of this sort.

F. R. PIERSON (GOLDEN HEART).—Probably the most perfect canna ever raised. Petals are broad and overlap one another. Color, an intense brilliant scarlet, very vivid, with golden pencilings in the heart of the flower. The petals recurve, giving the entire head a compact appearance. When the trusses are fully expanded, they make immense globular heads of scarlet. Experts who have examined this canna pronounced it the finest they have ever seen. It is very superior to any other variety of similar color in every way, compact growth, size of flower, exquisite coloring, large size of truss, and free blooming nature.

SUNSHINE.—Deep orange suffused with scarlet with a delicate fringe of gold around the petal. The name Sunshine was suggested on account of the flowers being covered with a brilliant satiny sheen which reflects the sunlight. It is by far the best variety of this shade of color and a great improvement on Paul Marquant, which it somewhat resembles, but its flowers are much larger. It produces the largest truss of bloom and largest individual flower, some of the flowers measuring as much as six inches across. It is an unusually free bloomer, dwarf in habit, and a beautiful thing in every way.

COLUMBIA.—A gem among cannas; an American seedling, and probably taking everything into account, the most distinct canna that has been disseminated since the introduction of Mme. Crozy. It is a strong grower, but short and stocky. The most striking characteristic of the plant is its branching habit, sometimes it has three or four trusses of bloom on the same spike, and all open at the same time, producing a mass of bloom of an even height. Color rich cardinal red. The petals have remarkable substance, lasting upon the truss longer than those of any other variety. What is wanted in cannas are flowers that have the ability to stand wind and rain and are not easily marred. This comes nearer to meeting this requirement than any other variety up to this time.

QUEEN CHARLOTTE.—Very striking, beautiful and distinct. Unquestionably the finest German novelty of the year. Center of the flower is bright scarlet bordered with a band of pure gold encircling each petal.

ORIOLE.—Exceedingly showy. Similar in color to Queen Charlotte, but a stronger grower, freer bloomer, and it has larger flowers and larger heads of bloom. The center of the flower is bright scarlet with broad edge of yellow, but not so wide as in Queen Charlotte, the scarlet and yellow blending more, and producing a more brilliant effect. Tested alongside of Queen Charlotte, it showed two or three times as many flowers, and will surpass that variety for bedding purposes. Its petals measure four inches in length and are the longest of any variety, in fact the extraordinary length of the petals makes them seem narrow, whereas they are as broad as those of almost any other sort.

FLORENCE VAUGHAN.—The finest and most beautiful mottled variety; yellow ground with scarlet spots. A perfect canna in habit of growth and size of flower, bearing large trusses and very perfect blooms.

CHARLES HENDERSON.—An exquisite canna of about the same color as Alphonse Bouvier, but entirely different in head of bloom, which is erect and compact, also in habit of growth, which is identical with Mme. Crozy. This variety was introduced last year for the first in any quantity, and it has proven to be a better bedder than was supposed. When tested at the World's Fair at Chicago, it was claimed that it was too late, but our experience with it in tests last summer was that it was one of the showiest of all the cannas, exceeding Bouvier if anything when bedded out. As a pot plant, it leaves nothing to be desired in that color, which is crimson. It is an ideal variety.

MME. CROZY.—This canna is now so well known as to need no comment, but it is one of the best yet. It was its introduction that popularized this class of plants, and led up to its improvement.

ALPHONSE BOUVIER.—A very strong grower, and for bedding purposes unsurpassed. Color, dark crimson. Very free, early bloomer, and very effective for outdoor bedding.

EGANDALE.—This is probably, all things considered, the freest bloomer of the dark leaved varieties. Its flowers too are dark. It is a fast grower, and A1 bedding sort.

J. E. CABOS.—A metallic bronze-leaved variety with orange colored flowers, flowers and foliage harmonizing and blending, making a very effective bedder. It is one of the freest bloomers, and on account of its distinct color is a general favorite.

F. R. PIERSON.

Tarrytown, N. Y., Feb. 12, 1895.

NOTES ON DAHLIAS.

One of the most simple methods of starting dahlias in the spring is to take the dry roots and lay them on the ground in a warm sunny spot about May 1 and cover them with sand or light soil; this will allow them to start into growth. When the young growth appears take up the old root and divide it into pieces, each one having a single eye, then plant them in good rich soil not closer than three feet apart each way; if planted closer they will run up spindling. This treatment applies only to double flowered sorts or very fine named single ones. The latter will give much better satisfaction if grown from seed, as they begin flowering much sooner than plants from dry roots.

The seed should be sown as soon as danger of frost is past in a bed, and when the seedlings are large enough transplant them where they are to bloom. All seedlings of either single or double sorts will as a rule flower longer and better than plants from old tubers, and so will young plants that have been grown from cuttings, but this latter plan is out of the question for amateurs who are without a greenhouse. To those who have propagating facilities I may state that all you have to do is to put the dry roots in a good warm place, water them thoroughly once and after that only moderately until the roots start to grow. Then make the cuttings two or three joints long with a heel, and place them in the propagating bench the same as any other cuttings. In about thirty days you have them rooted, then pot them singly into 3-inch pots and repot as needed.

Dahlias will do well in most any soil, light or heavy, if yours is light a slight mulch during July and August will be of great benefit to them; use straw, hay or any litter which you may have handy.

As to varieties one must choose according to fancy. I have found the following very satisfactory:

WHITE, Snowball, Camelliæflora, White Dove.

YELLOW, Miss Dodd, Golden Bedder, Oriole.

PLATE OF BOUSSOCK PEARS (SEE PAGE 183

SCARLET, Meteor, Boabdil, Vesuvius.

MAROON, James Walton, Maroon Beauty, Prince Bismarck.

PINK, A. D. Livoni, Viola.

VARIEGATED, Emperor (Floral Park Jewel), Emily.

CACTUS VARIETIES, Electric, Lyndhurst, Black Prince, Wm. Pearce, Maid of Kent, Nymphæa, Harry Freeman and a host of other new sorts. This class is very attractive and its flowers are grand for vases and general decorations. There is also a type of new single cactus dahlias which make a useful addition to the garden.

Many of the varieties mentioned here are old sorts, but they are none the worse for that, for they have proven themselves reliable. CHARLES H. ALLEN.

Floral Park, N. Y.

FAILED WITH BOLTONIA AND LAVATERA.

J. B. G., Flushing, N. Y., writes: "Last summer I tried a large number of seeds (annuals and perennials) whose names had stared at me for years from the catalogues, but which I had never seen growing. Among my unknowns I failed utterly with two. 1. Thorburn says of *Boltonia latisquama* "The handsomest border flower grown." I planted seeds in the hotbed (in flats) in early spring and again in the fall, but not one germinated. 2. I sowed *Lavatera trimestris* in the open in spring. It came up well. I thinned the seedlings out to about eight plants. When they got about a foot high one leaf after another lopped over, at a place on the leaf stalk that looked as if a string had been tied tightly about it. Finally this girdling occurred on the main stem and then the plant died. I suspected cut worms, but no digging around the plant, or lantern searching at night disclosed any enemy. I transplanted some of the plants to other parts of the garden, where at first they seemed to do better, but finally all succumbed. Have you any suggestions to favor me with?"

1. It is a tall growing, very handsome, hardy, aster-like perennial. But the hotbed was a bad place to sow it in; better have sown it in a cold frame, for it is slow to germinate. The hotbed is good enough for quick growing seeds, but a very poor place for slow germinating seeds as a good many of our hardy perennials, especially native plants, are.

2. The trouble with the lavatera was local, and probably might have been avoided were the seedlings transplanted when they were about two inches high. It is a very easy plant to raise and grow.

THE CANNAS GOT FROZEN.

R. K., Southport, Conn., had some canna roots in the cellar, and the frost got at them one night, he took them into the greenhouse next day and covered them over with damp earth and let them thaw out slowly. He asks what to do with them, and how to treat them to get them into good condition for blooming next summer.

By this time whatever damage the frost did to them will be visible. With a sharp knife cut out all the dead or decaying parts, then break up the crowns into several pieces, being sure to have at least one good eye to each. Pot each piece separately and let it start in the greenhouse. Or plant the pieces into flat boxes, rather close together, and about the first of April, after they have started to root and grow, plant them out in cold frames or a gentle hot bed, covering them securely from frost. This should give you well started stocky plants to set out in May.

PROPAGATE all manner of bedding plants now, and be especially particular about getting up a large stock of such ones as you use for cut flowers in summer, for instance, heliotropes, single dahlias, double white feverfew, oak geranium and the like. Make good use of the window, greenhouse and hotbed in raising seeds. But bear in mind that it is far better to wait till April and then sow in a cold frame than sow now and neglect the seed pots as regards warmth, moisture, light, shading and freedom from draughts.

[illegible] correspondent asks about raising this from seed. Sow the seed as soon as you get it, in fall or spring, in flats, or in a cold frame, and cover with hay or excelsior till the seedlings appear, if you sow in fall the seedlings may not come up till spring; if you sow in spring they should come up in a few weeks. Some of them should bloom when two years old, most all when three. It depends upon the parent plants how many of the seedlings will be "double."

THE WINTER LAWN DRESSING.—Just as soon as the snow has gone rake up the roughest of the manure dressing in the lawn and cart it away. Grass starts early, and if you leave the dressing on any longer the grass will become bleached under the clods of manure, and disfigured for a long time. At the same time see that stones, scraps of wire, sticks, and the like are raked off clean, else if left they will destroy the mowing machine.

WHAT TO DO WITH THESE RAKINGS.—The substance being washed out of it pretty thoroughly, it is of little account as manure this spring. We use it largely as a summer mulch to evergreens, young trees and shrubs, and for sweet peas, currant and raspberry bushes, and anything else that needs it, and cart the balance to the manure yard and throw it into a pile, when if it is wet, it soon starts to heat, and makes good material for mild hotbeds. The dry, chaffy stuff we cart to the hog pens for bedding, and as an absorbent.

BULB BEDS.—Watch the ones that have been mulched over winter very closely, and the moment you find the plants breaking through the ground lighten the mulching by removing a considerable part of it, and a little later, and before the tips of the plants get bleached, remove it altogether. Retard rather than hasten the growth of your bulbous plants if you would get the best results from them.

THE FLOWER GARDEN.—Very little can be done in the beds or borders. Look around among the labels and if any have been heaved out by the frost stick them into the ground before they get displaced; and if the writing has become in part obliterated restore it at once.

The Greenhouse.

"MY LITTLE GREENHOUSE."

A. B. C. has got a little greenhouse 12x16 feet, span-roofed, sunk one step below the ground level, and heated with a coal stove with a string of sheet iron smoke pipe running along under the middle bench. The panes of glass are large, light good, situation open, and ventilators at top and at one end, the door being at the other end. He wishes to grow flowers in winter and raise vegetable plants in it in spring, but he knows very little about either, and asks for help. The plants wilt with the heat, and the little green "bugs" infest them.

THE LAST ITEM THAT AND HOST. Keep your night temperature at 55° to 60°, and 5° to 10° warmer for raising seedlings in, but if the night is very cold let the temperature in the house drop as low as 50° or even 45° rather than run the fire very strong, for hot, dry fire heat is bad for plants, but heaven for red spider. In the day time let the temperature rise 10° or 15°, or in the event of a bright sunny day maybe 20°. In the morning, if it isn't a cold, raw, sunless or wet one, and the temperature doesn't fall below 55° or 60°, let the fire alone, you don't want it, for as the morning advances the heat will rise; in the event of a cold, raw or wet morning a gentle fire may do good.

If the morning or forenoon is bright, when the temperature in the greenhouse rises between 5° and 10° above 60°, say

about 9 o'clock, or earlier, open the top ventilator about an inch; and in an hour or less if the heat still rises open it a little more; maybe two, three or four inches at a time, according to the weather; by noon if the sun is strong the ventilators may be wide open. Don't open them full width all at once, nor shut them up all at once, nor run any fire heat in the day time if you have sun heat. Shut up the ventilators, a little at a time, early in the afternoon, beginning say at 2:30 and have all closed by 4 or 4:30, or earlier, just according to the weather. Be particular to shut up while there is still some good sun heat, and the temperature is say 75° or 70°—quite high but on the decline. This saves fire heat and the plants prefer it. Now start your stove, but do so gently, nothing more than prevent the temperature from falling below the night figure. Have the fire clean and free from ashes and clinkers, then bank it down a little and stop the draughts to prevent it doing any more than keep up the desired heat.

WATER: Give the plants lots of water. Fill the pots up to the brim but don't let it slop over, and when that sinks in fill up again if necessary; you want to give water enough to permeate every bit of soil in the pot. Don't bother about the temperature of the water, anything under lukewarm is all right. And in the morning and early in the afternoon with a water pot and rose sprinkle the benches, walls, paths, and all about with water to counteract the parching breath of the stove in the night time, and the drying influence of the sun in the day time; when sprinkling in the afternoon sprinkle the plants too that are not in bloom, but don't wet any blossoms more than you can help. But don't spare the water.

SHADE: Plants in bloom as geraniums, carnations, marguerites, nasturtiums, heliotrope, eupatorium and sweet alyssum won't need any shading, but obconica primroses, Dutch bulbs, begonias and any others you see wilting in the sunshine (even if they have been well watered) should be set in a part of the house where they can get a little shade. This shade may consist of a little strained lime whitewash, or better still some white lead thinned to the consistency of thin whitewash with turpentine or naptha; don't use oil in the lead or you can not wash it off when you want to. With a whitewash brush paint the glass with it. A sheet of calico fixed to a roller so that you can let it down or roll it up at will is excellent. In starting seeds you have got to shade them till they germinate; besides the shading on the outside glass spread some old newspapers over the pots or boxes in the day time but not at night till the seeds appear, and you have got to do the same when striking cuttings.

INSECTS: Use tobacco for the green flies. Get some fresh tobacco stems, moisten them just enough to keep them from flaming up when burning but not enough to prevent them smouldering. Make three or four little heaps, say ¼ peck in each heap, on the earth floor and set fire to them, shutting up the house tight. So long as they smoulder slowly all is well, but the moment any of them flames up heliotrope, callas, nasturtiums and some other plants get hurt, so you'd better experiment with one heap to begin with. Do it late in the afternoon and on a still, damp or dull day if possible. If you don't like fumigating try dipping. Fill a common pail full of stems and pour hot water on them, letting it lie some hours. Then empty the decoction into a tub, pour some more water on the stems and empty this also into the tub. Fill the tub half full or more of warm water, hang a thermometer into the water and have a kettle of boiling water near you to keep this water at a temperature of 120° to 125°. Now take your plants, one at a time, hold them pots up and heads down, and wash their heads in the tub. The warm water of itself is a good insecticide and harmless to the plants; better have the tobacco water a little weak than strong till you have practiced two or three times with it.

REPOTTING AZALEAS.

H. L., Oak Park, has tried to grow azaleas for the last twenty years, but never found any soil that suited them. They blossom beautifully the first year after being imported, but in a few years dwindle and die. They do not make any new roots.

Mr. Dean, who answered the inquiry page 151 is, we believe, the largest grower and importer of azaleas in the country. He grows the plants to sell when they are in bloom—thousands of them; and has many specimen plants that he has kept along for years, renting them out when in bloom, year after year.

This is what he says about them in a paper he read a few years ago: "Do not stand your azaleas under the shade of some convenient tree in summer and expect them to flower with you in winter. Give them the open sunshine. Plunge or plant them out in a frame where you have grown your pansies. If the soil is heavy add sand and leaf mould, as the azalea delights in a light, loose soil. Mulch, but do not use manure as it would injure, if not kill the plants. Water and syringe to keep down red spider. Treated in this way they will make a good growth and mature their flower buds and give you a good crop of flowers when wanted. Be careful to house the azaleas before frost as that would injure their flower buds."

If you have a limestone soil you cannot grow azaleas in it, if not we think you should succeed with them. After they have done blooming and the danger of frost is past turn them out of their pots, shake any loose soil away from the roots, and plant them out in a bed moderately close together, and in which a good deal of fine leaf soil and sand had been incorporated; mulch with half rotted leaves, moss, hay, or excelsior, and hose the plants early in the afternoon every fine day. If the bed is in an exposed place set up a lath shade six feet above it and so as to protect the plants from 12 to 3 o'clock more than any other time. About the end of August lift and repot the plants, using as small pots as practicable without hurting the roots, and plunge them back in the same bed till frost is expected. See that this bed is above ground level and where the drainage is perfect.

THE GREENHOUSE.

Keep the hyacinths, tulips, narcissi and other bulbous plants that are in bloom in a cool place and shaded from sunshine, else they won't last long. As the amaryllises that have lain dormant all winter start to grow, bring them up to the light and give them a little water, but not much for some time. Don't repot them till after they have bloomed unless they are in a poor state—the bulbs loose in the earth, the drainage clogged, or there are worms in the earth, then shake them out and repot them. Crinums the same. Pot up a few gloxinias, caladiums, and achimenes for early summer use, to be followed a few weeks later with a succession lot. Gloxinias and tuberous begonias sown now will give nice blooming plants in late summer. Calceolarias, cinerarias, pelargoniums, and obconica primroses love a little shade, and plenty water at the roots, but little or none overhead. Give abundance of water to fast growing plants, and hose or syringe daily azaleas, oranges, oleanders, and others of that type to keep them free from insects; and the azaleas to promote a good body new growth. Get in cuttings of all flowering plants you need next winter, say, carnations, bouvardias, stevia, eupatorium, streptosolen, marguerites, begonias, ruellia, justicea, and so on.

Roses.

FORCING MRS. JOHN LAING ROSE.

"Subscriber," Ashtabula, Ohio, asks for directions for forcing this splendid hardy H. R. rose. Mr. John Burton, of Chestnut Hill, Philadelphia, and who is one of the most successful cultivators of this rose in the country, kindly replies as follows:

—

You will find full and correct particulars about this in Mr. Hunt's book "How to grow cut flowers." To force "Laing" for Christmas it should be potted or planted in the bed it is to grow in by May 1. Encourage it to grow freely until August 1, then gradually withhold water getting the plants pretty dry by September 1, and and keep them as nearly standing still as possible until the latter part of September, but do not at any time let the wood shrivel during this drying process. About October 1 cut the plants down to within 8 inches of the soil and give the bed a good watering to start them. Grow them on in a night temperature of 50° for one month, then raise this slowly to 60° at which they can be kept until they have flowered. When cut down in October a top dressing of manure is good. Don't keep the soil very wet until the plants have quite a lot of leaves developed. After flowering, by keeping the bed dry for three weeks and then starting it up again the plants will generally flower a second time, about ten weeks later. For later crops than Christmas allow about ten weeks from time of cutting down to flowering.

Chrysanthemums.

CHRYSANTHEMUMS FOR AMATEURS.

C. H. P., Mass., asks for a list of 25 varieties of chrysanthemums for an amateur, six to be yellow flowered, six white, six pink, and seven of any other color; also to name one early and one late of the yellow, white and pink varieties Mr. I. L. Powell, one of our very best growers, names the following:

SIX YELLOW.—Gloriosum, early, and the best early yellow we yet have for general purposes; Eugene Dailledouze, late; and Major Bonnaffon, Minerva, W. H. Lincoln and Golden Wedding.

SIX WHITE.—Kate Brown, early; Mrs. J. Geo. Ils, late; and Ivory, The Queen, Alba Venus and Minnie Wanamaker.

SIX PINK.—Mrs. E. G. Hill, early; Harry Balsley, late, and although a very tall grower its color is good and it keeps well;

OSAGE MUSK MELONS [SEE PAGE 185.]

also Lady Playfair, Iora, Viviand-Morel and Maud Dean.

SEVEN OTHERS.—Inter-Ocean, pearly pink, a splendid variety; Pitcher & Manda, yellow and white, novel; Harry May, bronze; George William Childs, crimson; Puritan, lilac shading to white, a splendid old variety; Robert McInnes, old gold and crimson; and Hicks Arnold, bronze.

Aquatics.

EGYPTIAN LOTUS AS A TUB-PLANT.

In GARDENING, page 152, Mr. McElvery recommends *Nymphæa Marliacea chromatella*, *N. alba candidissima*, *N. pygmæa Helviola* and *N. odorata rosea* as tub plants. These are all good, doubtless the best of the hardy nymphæas. But after years of experience with all kinds of aquatics in the various ways of culture I pronounce the Egyptian lotus (*Nelumbium speciosum*) pre-eminently the most reliable and satisfactory of all the hardy water lilies for tubs.

GEO. B. MOULDER.

Smith's Grove, Ky.

The Fruit Garden.

SELECT APPLES AND PEARS FOR LONG ISLAND.

We have grown the following varieties of apples and pears, and from many years experience find them adapted to our soil and climate, and can recommend with confidence to amateurs.

A DOZEN APPLES.

YELLOW TRANSPARENT.—Bears quite early and abundantly; needs thinning.

HYSLOP.—An early apple and good for cooking and dessert.

RED ASTRACHAN.—The first ripens in succession on the tree; prolific and beautiful.

BOUGH.—This is the best early sweet apple; if a sweet apple is not wanted substitute Twenty Ounce, it ripens in autumn.

GRAVENSTEIN.—The best fruit of its season for all purposes.

MAIDEN'S BLUSH.—Beautiful and good for all purposes.

HUBBARDSTON NONSUCH.—Extra large and beautiful; our best early winter apple.

BALDWIN, ROXBURY RUSSET AND PECK'S PLEASANT are excellent. The latter is the best substitute we have for the Newtown Pippin, which it resembles, and it is such a favorite that we reserve it for home consumption.

RHODE ISLAND GREENING.—Next to the Baldwin this is the most popular winter apple.

LONG ISLAND RUSSET.—This is the best long keeping apple we have and when ripe is good for all purposes. Tree very productive. A selection of more than thirty sorts in some respects as good as this can be made, but too many varieties are objectionable except for the interest in testing new kinds. We have had more than 150 varieties to bear, but when we gather them it is often vexation of spirit and many are of little worth although good in some sections of our country. To plant and care for a fruit tree and find it after years to be worthless is a sore disappointment.

A DOZEN PEARS.

DOYENNE D' ÉTE.—This is our best earliest pear; the tree is a good bearer and thrifty grower. The fruit is pleasant but not high flavored.

GIFFARD.—It is not a rapid grower but is an excellent dessert fruit, in fact the best early pear we have tested.

CLAPP'S FAVORITE.—A very strong grower, bearing large and handsome fruit whose only fault is that it requires care in picking, and eating in the proper season. It should be picked when commencing to change color.

BARTLETT.—Indispensable and well known. The fruit should be thinned when half grown, and picked one week near ripe. Many pick all their Bartletts at one time but that is a mistake, they should be picked at three different times taking only those that change color, and the last picking will be the best fruit.

TYSON.—A good grower bearing handsome fruit of good quality.

BOUSSOCK (DOYENNE BOUSSOCK).—A good bearer with large fine fruit.

HOWELL.—This is equal for canning to any. A [illegible] keeps long after being gathered. We consider it the best after Bartletts are gone.

SHELDON.—The tree is an abundant bearer. Although the fruit is good it is inferior to those grown in Western New York. Heavy deep soil suits it best.

SECKEL.—Well known as the best in flavor, but needs the best soil and culture.

ANJOU and DANA'S HOVEY are the best late pears we have here.

KIEFFER.—Much praise and often despised, still we want the Kieffer. Treat it well, thin out the fruit one-half or three-fourths, and we have pears good for canning and passable, sometimes quite good to eat. We think potash in some form is what pear as well as apple trees need on Long Island in which our soil is deficient.

Westbury, L. I. ISAAC HICKS.

A DOZEN CHOICE APPLES.

The following varieties are the best and most suitable sorts for amateurs to cultivate in this part of the country, and they can be depended upon to give a succession of fine fruit of the highest excellence.

SUMMER APPLES.

EARLY HARVEST. One of the earliest. It is of good size, pale yellow, and fine, mild flavor.

PRIMATE. This is, perhaps, our best summer apple. The skin is yellow with blush on sunny side; and the flesh is tender, juicy and of the best quality. Excellent dessert fruit.

SWEET BOUGH. A large, yellow, sweet, tender, juicy, good fruit.

AUTUMN APPLES.

FAMEUSE. A deep crimson apple of medium size. Flesh snow white, tender and delicious.

OLDENBURG. A handsome, large, red and yellow variety; juicy, tender and pleasant. Fine for table and kitchen.

RED BIETIGHEIMER. A new and valuable large, conical, purplish crimson apple; flesh white, firm, subacid and pleasant.

RED CANADA. This is a superb bright red fruit of medium size, with rich, subacid, delicious flesh.

RHODE ISLAND GREENING. An old but indispensable sort of good size, greenish yellow color and excellent quality.

SWAAR. A large lemon yellow fruit of the highest quality, being rich, tender and aromatic. It requires high cultivation and well repays it.

TOLMAN'S SWEET is our best sweet variety. Its color is whitish yellow, and its flesh is firm, rich and very sweet. It also is splendid baked.

LOMPKIN'S CO. KING. A very large and magnificent fruit of prime quality. A vigorous tree.

WEALTHY. A recently introduced variety of decided merit. Its fruit is of medium size, roundish, dark red, juicy, vinous, subacid and good.

Rochester, N. Y. JOHN C. HEALY.

THE BOUSSOCK (DOYENNE BOUSSOCK) PEAR.

One of the largest, best and most deserving of our autumn varieties. The tree is a thrifty grower and it bears a good crop of good fruit year after year, being good both as a dwarf and a standard. Our illustration is engraved from a photograph of Dosoris fruit from a dwarf tree.

DON'T BE IN A HURRY to uncover strawberry beds or to unearth raspberry or grape vine canes, or fig trees, that have been buried over winter, no matter how warm and bright the weather may turn out to be.

GARDENING

WILLIAM FALCONER, Editor.

PUBLISHED THE 1ST AND 15TH OF EACH MONTH

— BY —

THE GARDENING COMPANY,

Monon Building, CHICAGO.

Subscription Price, $2.00 a Year—24 Numbers. Advertising rates on application.

Entered at Chicago postoffice as second-class matter.

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All communications relating to subscriptions, advertisements and other business matters should be addressed to The Gardening Company, Monon Building, Chicago, and all matters pertaining to the editorial department of the paper should be addressed to the Editor of GARDENING, Glen Cove, N. Y.

GARDENING is gotten up for its readers and in their interest, and it behooves you, one and all, to make it interesting. If it does not exactly suit your case, please write and tell us what you want. It is our desire to help you.

ASK ANY QUESTIONS you please about plants, flowers, fruits, vegetables or other practical gardening matters. We will take pleasure in answering them.

SEND US NOTES of your experience in gardening in any line: tell us of your successes that others may be enlightened and encouraged, and of your failures, perhaps we can help you.

SEND US PHOTOGRAPHS OR SKETCHES of your flowers, gardens, greenhouses, fruits, vegetables, or horticultural appliances that we may have them engraved for GARDENING.

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AN UNFORTUNATE MISTAKE.—Some weeks ago we sent two front page pictures to Chicago; one, Parsons' elata spruce, was meant for our issue of February 15; the other, the pendulous form of the European silver fir, to be used March 1. By some unfortunate oversight the printer changed the illustrations without also changing the text accompanying them. This is exceedingly mortifying to us. If our readers will please erase the name Parsons' elata spruce, from the front page picture in last issue, page 161, and write instead "Pendulous European Silver Fir (*Abies pectinata* var. *pendula*)" for text see page 178, and on the next page (162), beside the heading "The Elata Norway Spruce" write "for illustration see page 177," that is the front page of this issue, the matter will be made plain in case of any reference to it in future.

PROFESSOR HENSLOW says there are one hundred and twenty plants mentioned in the Bible.

THE DWARF CAMPANULA (PATYCODON) GRANDIFLORA.—European papers have had something to say about the *pumila* variety, which is represented as growing 9 to 12 inches high and bearing flowers in size and color just like the type. Well, isn't it the *Mariesi* that we have been growing in our gardens for years? Easily raised from seed.

OLD DEAD MOSS IN ORCHID POTS.—Fresh, green, clean picked sphagnum moss is sweet and orchid roots take to it kindly; as soon as it dies and begins to decay, however, it sours and orchid roots avoid it, or, if it be kept wet, often rot in it. In looking over your orchids in repotting them try and get rid of as much of this old, sour, rotten moss as you can without injuring the roots, and replace with fresh moss or fern root.

THE WINTER IN THE SOUTH.—Mr. Stewart, who has been in the nursery business at Memphis for over forty years writes us: "I do not recollect that in these parts, we ever had such a severe winter as this is, yet its coming so seasonably, that is while plants are in their most dormant state, has saved our trees, shrubs and roses. So far, February 5 our fig trees, fragrant olive, *Magnolia fuscata*, tea roses, and other comparatively tender plants, don't show the least sign of injury from the weather."

"OUR FIELD OF ASTERS" in Cannell & Sons' (of England) catalogue shows a field of China asters in fine bloom and grown in long wide-apart drills as we do it in America; the house and barns, too are American, aye, and the whole picture has a familiar look. Henry Cannell, you know that isn't "our (your) field of asters" at all, but an American picture, from an old American catalogue, and showing an American field of China asters. Next time when you use that cut be candid enough to say "*A* field of asters" and not "*Our* field of asters."

A PRIMY SWEET PEA.—Among the novelties promised us for next year is a very dwarf sweet pea to be named Cupid It may be seen this coming summer growing at Fordhook Farm, Pa., at Indian Orchard, Mass., in Mr. W. T. Hutchin's garden, and at Santa Clara, California, on the farm of Mr. C. C. Morse. The introducers say of it: "This wonder among flowers is a really dwarf sweet pea that grows but five inches high and blooms so freely for months that it appears a perfect mass of white, the leaves being quite hidden from view. The flowers, of fine form and large size, are of the most perfect white, and the plants remain in full bloom two months longer than any other sweet pea."

OVERDOING GARDENING.—"I went to stay at a very grand and beautiful place in the country where the grounds are said to be laid out with consummate taste. For the first three or four days I was enchanted. It seemed so much better than nature, that I began to wish the earth had been laid out according to the latest principles of improvement. In three day's time I was tired to death; a thistle, a heap of dead bushes, anything that wore the appearance of accident and want of intention was quite a relief. I used to escape from the made grounds and walk upon the adjacent goose common, where the cart ruts, gravel pits, bumps, coarse ungentleman-like grass and all the varieties produced by neglect were a thousand times more gratifying." —*Sydney Smith.*

NAMED HOLLYHOCKS AND THE DISEASE.—In Europe the finer varieties of hollyhock are named and propagated from slips or stem sprout cuttings; in this country we seldom bother raising hollyhocks in that way, we content ourselves with getting them from seed. There is a general impression that seedlings are less liable to be attacked by the hollyhock disease than are plants raised from cuttings. A successful grower of these plants states, in the *Journal of Horticulture*, "in my experience the named sorts withstand the attacks of disease in exactly the same degree that seedlings do; if the fungus comes in contact with either they will take the contagion, if not they will keep clean."

OUR ANSWERS TO QUESTIONS are candid, the voice of actual experience, and the plain practical truth; there is no guessing at or evading a point. And it is very gratifying to us to know that our readers appreciate them. The following from H. R. G., Dayton, Ohio, is only one among the many pleasant notes we get from our readers: "Please accept my thanks for the very satisfactory reply to my letter on rhododendrons in your last number of GARDENING, it has been greatly enjoyed by all your subscribers of my acquaintance in our city. I was so struck with the plant while abroad that I made up my mind to try a bed at home. I think that the matter of lime in soil can be overcome by the bed being properly prepared. Again thanking you for your valuable information I am, etc."

NEW ORLEANS AFTER THE FREEZE.—"Alas, for the city of palms," writes Mr. C. R. Panter, "Jack Frost brought his mantle of snow and spread it over us, then breathed 15° of his blizzard breath upon us. In consequence, the mighty specimens of *Phœnix reclinata*, *P. Canariensis* and others of the genus are lying low. *Corypha australis* looks as if a fire had been built under it, and it is very doubtful, if there is any life left in it. The magnificent specimens of *Washingtonia robusta* and *filifera* are a thing of the past. All the *Livistona Chinensis* are I think killed, and about all the palms we have left are *Cocos australis* and *Chamærops humilis*. Bedding plants in the gardens have nearly all been killed but this is a small loss we soon can replace. The rose bushes have suffered a little but the injury to their tops is fully compensated by the rest it will give to their roots. Hearing so much about the orange trees being destroyed I asked a few of the orange growers down here about it, but they are not ready to admit that their trees will die."

COCKROACHES.—The big brown fellows that infest greenhouses should be killed, for now that the orchids are beginning to push out fresh roots, the roaches are apt to bite the points off of them. The roaches are easily destroyed, however. Take a little sweet cake and break it into small crumbs, then sprinkle it all over with Paris green and lay this where they can get it, say on a shallow tray under the hot water pipes near the boiler, for they congregate most there. Midnight is their foraging time. They will also eat poisoned brown sugar. Trying to kill them by dusting any kind of pyrethrum or insect powder into their haunts is all

foolishness, no matter what the "printed directions" on insecticide boxes may say. The only way to kill greenhouse cockroaches is to feed them a little at a time and poison their food. They will eat arsenic or paris green or rough on rats with their cake and sugar without apparently any discrimination. But be exceedingly careful about these poisons so as not to leave them where pet animals can get at them.

The Vegetable Garden.

MUSK MELONS.

While water melons luxuriate in rich light or sandy land, musk melons have always done better with us in good loamy soil. They are an uncertain crop, however, not that they won't grow well and bear well, but the first is often of inferior quality. Take the Hackensack for example, it has large, fine appearing melons and is the most certain of all as regards ripening a crop of fruit. But it is a coarse fleshed melon and of inferior quality. To get well ripened melons of first-rate quality gives us a good deal of concern, and we are not alone in this if the wretched trash served at hotels in summer is any criterion of the sort of melons sent to market. In out of door grown melons we can not get and do not expect the rich, luscious and high flavored flesh of the Sion House, Eastnor Castle and other sorts grown in greenhouses (they refuse to succeed in the open air), but we believe our seedsmen could get us a very much better article than we now have. How? By rigid selection and having the seed grown in the region where it is intended to be sold, say in N. J. or Long Island for the eastern states. But this could not be done at a profit. Perhaps not at the price melon seed is now bought and sold for, but many of us would willingly pay the advanced price for the select article than accept of the commonplace stock gratis.

For quality Emerald Gem, salmon flesh, leads. Surprise, salmon flesh, we like for its earliness; its quality is fair. Long Island Beauty, green fleshed, somewhat resembling a Hackensack, gave us a fine crop of fair fruit last year. The Bayview, light green flesh, is a nice melon, but we reject lots of it; and so we do the Christiana. As for the Banana, it has been so worthless with us we don't now bother with it. The Montreal is a big, pale green fleshed melon that seems to deteriorate rather than improve. The Banquet, salmon, is promising, but a couple of years are not enough to give it an abiding test. When Jenny Lind, green, is good she's very good, but the strain doesn't seem to improve much. Netted Gem the same. Favorable conditions, however, bring the Gem up in good order. We don't care much for the White Japan nor for Long Yellow Cantaloupe. Grown in frames the Newport, green, was fine with us; in the open air not so promising. The Osage is one of our best melons; although not as good as Emerald Gem it is better than many, and the plant is healthy, a good cropper and matures a considerable number of its fruits. Of course most all melons that escape the stem borers and other pests ripen a large proportion of their fruit, but all of this fruit isn't good enough to eat.

But no one should go by another's experience in growing musk melons, condi- [illegible] have so much to do with it, and insect pests as much as anything. Indeed they don't behave the same with us year after year. Our selection for this place would be Surprise, Emerald Gem, Early Hackensack (for its certainty), Osage and Long Island Beauty.

HOTBEDS.

We are all making them now. Read what was said about them last month, page 152. We may again repeat that the main points in making a hotbed are a warm, sunny, sheltered spot, perfect drainage and good, fresh, steaming hot manure. Don't make up the bed till the manure is hot; and after making it up don't cover it with loam till the heat has risen well in it again.

In smoothening off and firming the hot manure before putting on the loam be sure it is well firmed around the out edges, also under the rafters or bars, else when the manure begins to rot the bed will sag in the loosely packed spots. Two feet deep of manure makes a nice lasting bed, that requires a three feet deep at front pit—two feet for the manure, six inches for the soil and six inches in front and twelve inches at back of head room. It is a bad plan to slope the bed of the hotbed as the top of the frame is sloped, the back part dries out too rapidly.

About five or six inches deep of loam is safe for sowing or planting in and not apt to get too hot at first for sowing seeds of lettuces, cabbage, egg plants, etc. For transplanting we don't use much over four inches deep of soil; but for lettuce plants, carrots, spinach and radish that are allowed to perfect themselves in the frame five or six inches of soil are best, and six or seven for cucumbers.

There are three ways of sowing seeds in frames, namely, broadcast, in narrow rows and in boxes. We prefer sowing in rows. When we don't want many plants of a kind, say egg plant or peppers, we sow them in flats or pots and set these into the hotbeds; also many kinds of flower seeds we sow in pots or boxes in the same way. Be sure to shade the seeds after sowing them and till they germinate; this saves watering and greatly lessens the tendency to damp off. Don't shade transplanted or growing plants, except very little, for a day or two maybe after planting them. But cucumbers are the better for being shaded lightly all the time.

The hot steam that forms in fresh hotbeds is very injurious to plants, let it escape by tilting up one of the sashes, a fourth or half of an inch night and day till the steam subsides; but you can place a mat or straw over the aperture at night. In the day time ventilate according to the weather, beginning a little at a time, and shutting up in the afternoon, a little at a time. In ventilating we prefer tilting up the sash at the side to raising it at either end, and we can do this as little or much as the occasion warrants. Ventilate at the side opposite to the direction of the wind.

Hotbeds need covering at night. While straw mats and wooden shutters are the best, old matting, carpets, sedge, hay or straw may be used. Be very watchful about the covering, for it is no use having a hotbed if we let the frost get in at the top.

NITRATE OF SODA KILLED THE MELONS.

C. W. F., Oshkosh, Wis., writes: "Having read that nitrate of soda is a valuable fertilizer 'very quick in action and hastens [illegible] spring when my melons and cucumbers were well up attempted to 'hasten maturity' by the application of a couple of tablespoonfuls to each hill. The nitrate 'hastened action' quickly for it killed every plant. Please tell me how to use it."

You killed them with kindness. About 200 pounds of nitrate of soda applied broadcast, to the acre, is a fair dressing, and instead of applying it all at once it is generally made two parts of for application in two dressings. Sift a lot of dryish mellow soil and mix it thoroughly with the nitrate of soda, at the rate of four or five parts of earth to one of the fertilizer. This will enable you to distribute it more evenly over the land.

Miscellaneous.

CATALOGUES.

VAUGHAN'S SEED STORE, 88 State street, Chicago, also 26 Barclay street, New York—A large and full catalogue of flower and vegetable seeds, greenhouse plants, small fruits, roses, etc. Including covers, five full page colored plates of flowers and vegetables, and twenty pages of novelties.

S. B. HUESTED, Blauvelt, N. Y.—Garden and orchard fruit trees of all kinds, small fruits, vines, and nuts; also ornamental trees, shrubs, roses, and perennials, and asparagus, rhubarb, etc.

ELLWANGER & BARRY, Mount Hope Nurseries, Rochester, N. Y—A supplementary catalogue of their finest fruits and ornamental trees and roses with twenty-seven half-tone engravings from photographs, showing the plants as they actually are. And how much better they appear in this way than in the ordinary illustration style.

STARK BROTHERS, Louisiana, Mo. Fruit trees of all kinds, roses, etc., as grown in 1000 acres of nurseries, and 30,000 acres of orchards

EDWARD GILLETT, Southwick, Mass.—Hardy flowers, lilies, ferns, orchids, bog plants, roses and native trees or shrubs.

HENRY A. DREER, 714 Chestnut street, Philadelphia — Flower, vegetable, and farm seeds, greenhouse and hardy plants, roses, etc.

L. L. MAY & Co., St. Paul, Minn.—Flower and vegetable, and farm seeds, roses, and small fruits.

JOHN GARDINER & Co, 631 Market street, Philadelphia—Flower and vegetable seeds, poultry, etc.

JOHN D. IMLAY, 9 N. 5th street, Zanesville, O.—Vegetable and flower seeds and plants.

JAMES J. H. GREGORY & SONS, Marblehead, Mass—Vegetable and flower seeds, plants and small fruits.

E. J. BOWEN, San Francisco—Vegetable and flower seeds.

G. H. & J. H. HALE, South Glastonbury, Conn.—Small fruits, peach and plum trees, asparagus, etc.

B. A ELLIOTT Co, 54 Sixth street, Pittsburg, Pa.—Hardy ornamental trees and shrubs, and perennials, also flower and vegetable seeds.

THE GOOD & REESE Co., Springfield, O.—Roses, chrysanthemums, greenhouse plants, and flower seeds.

T. J. DWYER, Cornwall, N. Y.—Strawberries and other small fruits, grapes, fruit trees, and ornamental trees and shrubs.

HORSFORD'S NURSERIES, Charlotte, Vt.—Hardy ornamental herbaceous plants, bulbs, ferns, shrubs, and vines.

WM. H. HARRISON & SONS, Lebanon Springs, N. Y.—Wholesale catalogue of native trees, shrubs, perennials and seeds

W. A. MANDA, S. Orange, N. J.—Trade catalogue of seed and plants.

HERENDEEN MANUFACTURING CO., Geneva, N. Y.—Boilers.

THE STEELE, BRIGGS, MARCON SEED CO., Toronto—Vegetable and flower seeds and plants.

BEN HAINS, New Albany, Ind.—Flower seeds, bulbs and plants.

THOMAS MEEHAN & SONS, Germantown, Philadelphia—Trees, shrubs and hardy plants.

A. F. CONARD, West Grove, Pa.—Flower seeds, and roses.

SCHLEGEL & FOTTLER, Boston—Flower and vegetable seeds and plants.

W. & T. SMITH & CO., Geneva, N. Y.—Fruit and ornamental trees and shrubs.

H. G. FAUST & CO., Philadelphia—Flower and vegetable seeds.

PLANT SEED CO., St. Louis—Vegetable and flower seeds.

FRANK FORD & SON, Ravenna, Ohio—Vegetable, flower, and field seeds, fruit trees and ornamental shrubs.

J. J. BELL, Binghamton, N. Y.—Flower and vegetable seeds.

R. M. KELLOGG, Ionia, Mich.—Small fruits and how to grow them.

WM. PARRY, Parry, N. J.—Fruit trees and small fruits, and ornamental trees and shrubs.

DANIEL K. HERR, Lancaster, Pa.—Flowering plants.

J. H. TRYON, Willoughby, Ohio—Grape vines and small fruits.

PITCHER & MANDA, Short Hills, N. J.—Quarterly trade list of plants and seeds.

ELGIN NURSERIES, Elgin, Ill.—Fruit and ornamental trees.

W. PIERCY, 89 West Road, Forest Hill, London, Eng.—Chrysanthemums.

T. H. Spaulding, Orange, N. J., chrysanthemums.

Sunset Seed & Plant Co. 427 Sansome street, San Francisco, Cal., fruit trees.

The Humphreys Mfg. Co., Mansfield, O. Spraying machinery.

Miller-Knoblock Wagon Co., South Bend, Ind., sprinkling wagons.

Kroeschell Bros. Co., E. Erie street, Chicago. Greenhouse boilers.

Fred. Roemer, Quedlinburg, Germany. Flower, vegetable and agricultural seed.

The Cottage Gardens, Queens, N. Y. Carnations, cannas, etc.

August Rolker & Sons, 136 West 24th street, New York. Flower seeds, etc.

Vick & Hill, Rochester, N. Y. Hardy and greenhouse plants.

E. G. Hill & Co., Richmond, Ind. Roses, cannas, chrysanthemums, and greenhouse plants.

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A rattle of rose-flowering vine, covering a rustic porch wall or trellis. It has grown two inches in 24 hours, and when in bloom, from 25 to 50 of the immense red shaped flowers shown above at one time. Flies, wasps, mosquitoes, 12 in. 18 inches not in bloom. Per full size package 24 2 cent bag. The resort of the plant arrived at the annual people at Washington Park last summer. Mr. J. Kanof, head gardener of that Park says: "It should go west of Missouri and called it a pumpkin." Persons trouble would be cast with a 12 feet vine. About as a high wind the green will scale off. Good Plants, each, 50c.

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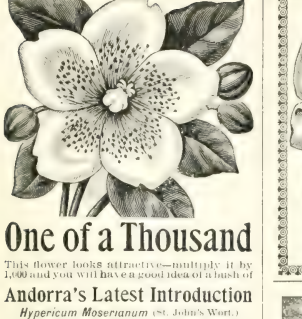

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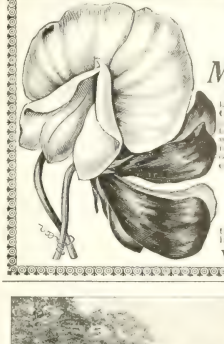

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Publisher's Department.

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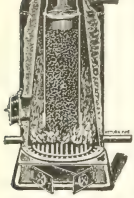
I HAVE to say, as many others do, that GARDENING is the most practical and useful publication of which I have any knowledge. C. W. T.
Portland, Ore.

I SHALL endeavor to get some of my friends in the "Sunny South" to take your paper. At present they don't know how poor they are without it. It is the best thing of the kind for the money Uncle Sam has the honor of bringing us.
Atlanta, Ga., Jan. 28, '95. C. W. C.

AN EXPERT PRACTICAL FLORIST'S OPINION. As I have often told my friends I have been a reader of GARDENING from the first issue, and I consider it ahead of any horticultural paper published in America to-day. DAVID FISHER.
Montvale, Mass., February 7, 1895.



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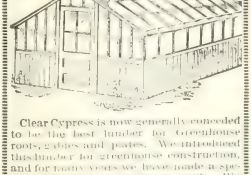

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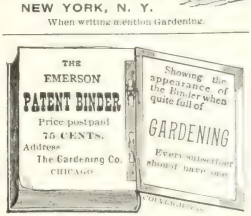

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GARDENING

Vol. III. $2.00 a Year. 24 Numbers. CHICAGO, MARCH 15, 1895. Single Copy 10 Cents. No. 61.

THE SUNKEN GARDEN AT FAIRMOUNT PARK PHILADELPHIA

The Flower Garden.

THE SUNKEN GARDEN AT FAIRMOUNT PARK, PHILADELPHIA.

When Horticultural Hall was erected for the purposes of the Centennial, in 1876, there was laid out on its western front a "sunken" garden, stretching away towards George's Hill, an eminence from which a commanding view of the city may be had. This garden is about four feet below the surface of the walks, which are on each side of it. It has been kept up unaltered ever since it was first made save that a different arrangement of beds and flowers is made every year. The illustration shown, from a photograph taken last summer, gives a view from near Horticultural Hall extending to the Catholic Fountain, which is the name of the furthermost one of the two marble erections in the background. The nearer marble statue is that of Columbus.

The nearest or oval bed is planted as follows: Outside circle, golden coleus, next one, Verschaffeltii coleus, next is variegated stevia, and the centre iresine. The second bed contains a dark red geranium for the centre, with an edging of variegated leaved geranium. The third one has for its centre variegated leaved abutilon, edged with *Acalypha musaica*. For the fourth bed, a pink geranium

occupies the center, and a variegated one the outside place. The fifth one is a counterpart of the first. What appear almost as triangular beds inside the bordering are in pairs and are filled as follows: All being edged with alternanthera, first pair, dark coleus, second, variegated stevia; third, golden coleus; fourth, variegated stevia, and fifth, dark coleus. The wide bordering is composed of three rows of alternantheras, the inner one yellow, the outside ones dark. In the formation of the festoons on the banks, golden feather feverfew and alternantheras have been used. The golden feverfew is dotted along the outside rows mixed with the *Alternanthera paronychioides*. The centers are filled with *A. aurea nana*. Mr. Mingey, the superintendent of the hall, tells me that better coloring might have been had with *A. rosea nana*. I learn also from him that about seventy-five thousand plants are used annually in this "sunken" garden.

The pretty evergreen in the front of the picture is the white spruce, as nice an evergreen, where one of but medium growth is desired, as could be planted. Where visitors are seen crossing the garden, is the Victoria lily pond. The beautiful trees seen on each side of the garden are Oriental planes, and Chief Charles H. Miller, is justly proud of them. Planted in 1878, then but small trees of but an inch or so in diameter of stem, they are now eighteen inches in diameter and fifty feet in height, and the spread of branches is as many feet in diameter. Much care is given here to the proper planting of trees. Poor soil if it exists is carted away and good material is used generously, which with intelligent planting and close pruning, ensures the trees a good start.

Philadelphia. J. MEEHAN.

POTS OF PLANTS ON VERANDA POSTS.

I intend to use seven 10-inch pots this spring on the tops of as many veranda posts, where they will be exposed to the sun until late in the afternoon. Please tell me what vines, etc. to plant in them to obtain the best effect from the yard below. The pots will stand about twenty feet from the ground. C. W. C.

Atlanta, Ga.

You have given us a hard question. It is a very easy matter to deal with vases easily reached from the ground, or that are in partial shade, or even in exposed places if they are large enough to hold a considerable body of soil that may be kept moist all day with one good watering. Ten-inch pots are too small to hold soil and water enough to support a luxuriant growth of plants in such a fiercely parching exposure as you mean them to occupy, and the kinds of plants that will thrive up there is quite limited; that is so far as tested; many of the stereotyped vase plants would burn out in such an exposure. You must protect the pots from direct sunshine, else in warm bright weather they will get so hot about 1 or 2 p. m. that they will burn the roots fo the plants. Get some chip, wicker or light wooden casings without bottoms, made to set the pots into as one would into a jardiniere, to save the pots from the sunshine; and under each pot set a large sized flower pot saucer and fill it with water every time you water the plants. For center plants in the pots use American agaves, or yuccas (say *Y. aloifolia*) in the way of stiff things, and acalyphas in the way of broad leaved colored foliage. *Maurandia Barclayana*, *Stigmaphyllon ciliatum*, *Antigonon leptopus* and *Abutilon vexillarium* might be used for hanging vines. For floral effect blue and white Cape plumbago, vivid scarlet lantana, the airy Lindheimer's gaura, single petunias, white and red eyed *Vinca rosea*, globe amaranths and French marigolds might be used. Had you more root room we would also advise Lobb's nasturtium, Madeira vine, cobæa, cinnamon vine, cordate leaved manettia, *Ipomæa paniculata*, rose geranium and grevillea. The grouping or arrangement of the plants in the pots or vases will call for sharp discretion on your part; don't use too many varieties or ones of violent contrast in the same pot. But, if at all possible, let us urge you to use bigger pots, or better still, wooden tubs or boxes.

VARIOUS QUESTIONS.

A. S., Whitewater, Wis., asks: 1. Why does canna Egandale receive so little comment? So far as my experience goes it stands away at the head in color, duration and freeness of blooming.

2. When begonia Vernon is used as a bedding plant must new plants be had each year, or can they be carried over? If the latter, what should be the winter treatment?

3. What magnolias, if any, will stand Wisconsin winters? How about *M. stellata?*

4. Where can I buy the variety of dwarf Juneberry known as Success? I have never seen it advertised.

5. Will it do as well to prune outdoor rose bushes in the fall and so economize the labor of protecting them? Such free growing sorts as Mme. Charles Wood, for instance.

---

1. True, it is one of the brightest and best of cannas both in flower and foliage.

2. We never keep over a plant of it. We save our own seed in fall and sow it in January or February in a box in a warm greenhouse. The different varieties come pretty true from seed. Commercial florists, however, keep over lots of old plants, striking cuttings from them.

3. Experiment only can decide. Probably *M. hypoleuca*, a grand arboreal species from northern Japan. About *M. stellata*, as it is the smallest it is the easiest to protect, and if not quite hardy, with a good mulching of tree leaves about it and an inverted hogshead over it in winter it should live.

4. Try Prof. Budd, Ag. Col., Ames, Iowa. Although Success is written about a good deal in Ag. Ex. Station bulletins we have not found it in the nurserymen's catalogues at our hand.

5. Before winter sets in we shorten in the long shoots a little, just enough to let us get easily to work among the plants in mulching, or laying them down to cover them, but we never cut them back enough in fall to answer for the final spring pruning. After unearthing the bushes in spring prune them back to sound wood and plump eyes.

RAISING AURICULAS AND HARDY PRIMROSES FROM SEED.

Early in January I sowed auricula seed in a pan on a smooth surface of soil consisting of leaf mould, sand, and sod rotted down with cow manure. According to directions accompanying the seeds they were covered only with snow, two or three inches thick, and the pan placed in a cold room in the cellar. As soon as the snow had melted other was put in its place, and after that had melted the pan was kept moist by standing it in a saucer of water. After two or three weeks I was surprised to see the seeds germinating abundantly in the cold cellar. I brought them up at once to a light window and still keeping a little water in the saucer, the tiny plants are growing. How should they be treated from this time forward for open air, frame, and dwelling house bloom if the last is practicable? Hardy garden primroses sown and covered in the same way last year germinated nicely.

New Jersey. INQUIRER.

Prepare pans or wooden flats filled with the same sort of earth as the seeds were sown on, and made even and firm, and prick off the seedlings into them an inch apart. When danger of hard frost is past place them outside in a cold frame, somewhat shaded if practicable, and protect from sharp frost. About the middle of April or earlier, if you have a cold frame against a north-facing wall or board fence, plant out the auriculas and primulas into it, five or six inches apart, or an inch or two more in the case of strong polyanthuses, and let them stay there all summer, and cover them with lath shading during the hot weather. They won't bloom this year. Next September lift a lot of them and plant in a south facing frame for winter or early spring flowers; leaving the rest in the north frame for a succession. If you want them in the house lift and plant a few—say four or five in each pan—in pans, or more in small boxes but grow them outside, letting them have the frost and snow till Christmas. Then bring them in. Your way of raising them from seed is particularly good in the case of the European wild primrose, which under ordinary treatment is often very refractory. Polyanthuses and auriculas, however, grow readily in the usual way.

CLEMATIS PANICULATA FROM SEED.

A Boston correspondent sowed seeds of this Japanese vine and otherwise treated them as recommended in GARDENING, page 164, February 15, 1893. "Seeds should be sown in beds in the open ground in autumn, and in spring the beds should be covered entirely with bricks or stones to keep the soil moist, and also keep down the weeds."

Mr. George C. Woolson, Passaic, N. J., who wrote the instructions above referred to explains as follows:

"The direction for sowing seeds of *Clematis paniculata* as to covering, etc., was simply to avoid the necessity of frequent working during the summer. Your correspondent states that the seeds were gathered and planted the first of November. This in my estimation is too early, as we never gather until the last of the month and like to have them remain on the vines as long as possible, as many of the seed are not perfect. I have had never any difficulty in getting the seeds to germinate when treated as recommended. I find that a fair proportion will grow the following fall after planting and a small percentage will not appear until the following spring. The seed beds ought to have been uncovered as soon as the fall rains began, say the last of September. This with the too early gathering and sowing of the seed seems to me the cause of failure.

RAISING CHINESE PAEONIAS FROM SEED.

P. F., New Rochelle, N. Y., asks how to do this, how old the seedlings will be before they bloom, and what percentage is likely to come double.

After you have gathered the seed in fall sow them in 4-inch deep flats, filled with

THE DWARF CATALPA

light soil; set the flats into a north or east facing cold frame, or outside against north-facing wall or close fence, covering them with moss, hay, or excelsior. If they are outside, take them into a cold pit or frame over winter, to save them from accident, not from frost. The seeds will not germinate before the following spring, maybe not for a year. The next spring after the seedlings appear plant them out in good ground in a warm place in the garden in rows fifteen or eighteen inches apart. If all is well they should begin to bloom when three years old. The first year's flowers may be single, the next double, and the color too may change. Chinese pæonias are very inconstant and uncertain in this way, in fact, before they are four or five years old it is hard to tell what is to be their fixed character.

Trees and Shrubs.

THE DWARF CATALPA.

These trees are growing in the Union Pacific R. R. Co.'s park in Lawrence, Kansas. They were planted four years ago last spring, the tree at the left in the illustration is five feet six inches to the branches, which have a spread of thirteen feet, the stem is six inches in diameter; the view of the tree is from the west, to show how erect and evenly it carries its massive top against the prevailing south wind. The photographs of the trees were taken the last week in August, 1894, during a long prevailing drouth which had dried the grass on the lawn to a crisp, yet the leaves on the trees were erect and of as bright refreshing green as in June. The limbs are very numerous and close jointed and the foliage very dense, which makes a new style in tree top, and renders them very conspicuous in any lawn or group of trees. They remind one of the tree oddities seen in foreign lands, on which years of labor had been bestowed to produce the result, while these trees grow so naturally. They are hardy and adapted to a wide range of climate and soil; growing them as standard or in umbrella style, originated with myself. A. H. Griesa, Lawrence, Kans.

This dwarf tree is a decidedly odd form of *Catalpa bignonioides*. It is generally grown flat to the ground like the lesser plant in the illustration, but of recent years the standard form as shown by the tall plant in the picture has been largely adopted. The stock used for grafting on is *C. speciosa*, or Teas' Hybrid, because either of these is hardier than *C. bignonioides*. Dwarf though this plant is it grows freely and makes a heavy mass of healthy foliage, resisting heat and drouth and apparently free from fungus and insect pests. We have never known it to bloom. Although it is known in gardens and nurseries the country over as *Catalpa Bungei* it has no right to this name.

The true *Catalpa Bungei* is a tree indigenous in northern China, and it is a question if there is a living plant of it outside of its native country. Two or three years ago we saw a few young plants at the Arnold Arboretum which were supposed to be the genuine *Catalpa Bungei*, the seeds from which the plants had been raised having been sent there as such. Under date of February 3, 1895, Mr. Jackson Dawson of the Arboretum writes us:

"What we received from China as *Catalpa Bungei* has stood out of doors for the past two winters without protection, and seems as hardy as the other catalpas. If not as fast a grower as *bignonioides* it is nearly so, and although it is yet too soon to say much about it it bids fair to make a tree in this vicinity. But Prof. Sargent is not quite positive that we have yet got the true *C. Bungei*, although this was sent here on good authority as such." The catalpas in common cultivation are *C. bignonioides*, and its golden leaved form, also the above dwarf variety; *C. speciosa*, known as the hardy catalpa; *C. Kæmpferi*, a Japanese tree less beautiful than the other species, and Teas' Hybrid, a cross between *Kæmpferi* and one of the American kinds already mentioned, and a hardier and more vigorous tree than either of its parents.

WINDBREAKS FOR BLEAK EXPOSURES.

This is a very vital question, and to people of no horticultural experience, but who have homes in open bleak places, a most perplexing one. With the view of aiding our readers in this direction we submitted the following questions to Mr. Robert Douglas of Waukegan, northern Illinois, who has kindly answered them. His answers apply to places where the minimum temperature in winter runs about 10° to 20° below zero.

A GARDEN HEDGE.—On a suburban lot where land is limited and there is room for only a garden fence or hedge what would you plant or advise to be planted as a shelter hedge or fence?

Ans. For a garden hedge where land is limited use Norway spruces 15 or 20 inches high and plant them 15 inches apart in the hedge rows and only in one row. If the residence faces the south or east the hedge can be grown 10 to 12 feet high on the north and west sides for shelter. Trim the hedge every spring immediately after new growth has started; trim it wedge shaped, broad at bottom and to a point at top. Should the part of the country be too far north for Norway spruce use white spruce (*Picea alba*). These two trees hold their foliage on the lower limbs better than any other hardy conifers.

SHELTER FOR A SUBURBAN HOME GROUNDS AND ORCHARD.—On a suburban place where land is more plentiful, say a few acres, and a mixed belt of trees could be used if necessary, what would you do? And in the case of a large orchard or farm where land is abundant and there is room for all the belt of shelter necessary, what would you advise?

Ans. Plant a row of Scotch pines on the north and west sides, 8 feet in from the outside line, and 15 inches apart in the row. Then mark out rows 20 feet apart on the rest of the land intended to be planted and on these rows plant permanent trees such as burr oak, white elm, sugar maple, Norway maple, black cherry, etc. Next mark off 4 foot rows between the 20 foot ones, and in these plant cheap, rapid growing trees four feet apart in the rows; use Carolina poplar,

box elder, hardy catalpa (*C. speciosa*), silver maple and the like, and inside of these a few evergreens in groups to break the straight lines, which otherwise would be monotonous. This would make a complete shelter in the shortest time, and as the trees begin to crowd each other the nurse trees can be cut out and used for fuel. If the catalpa trees are mixed with the nurse trees so that they stand at the furthest distance from permanent trees no doubt they would be big enough for posts before they would need removal. I never saw a double belt of evergreens that proved satisfactory after the first few years; a single row gives each side an equal chance and keeps each side symmetrical, and standing closely, they fill in the whole space. I speak from experience, having a Norway spruce single belt planted in the spring of 1845, and a Scotch pine belt planted before the war. In a double belt the outside of each row outgrows the inside invariably.

TREES ON OPEN PRAIRIE GROUND.—What kinds of trees would you set out on an open prairie home ground, and how would you plant them for shelter?

Ans. Plant a row of of green ash three feet apart in the row on the north and west lines, then line off the ground into twenty feet apart rows, four, six, or as many rows as you wish, and in them plant permanent trees twenty feet asunder in the row. Set the trees in the second row opposite the center of the spaces in the first row. Then between the 20 foot rows and running parallel with them, line off four equi-distant rows and plant rapid growing cheap trees in them, four feet asunder in the row. This will make a permanent shelter in a very short time. The permanent trees should consist of oak, green ash, linden, white elm, sugar maple and canoe birch; all of these and many others are hardy on the prairie even up to the Manitoba line. The green ash is a western tree, a rapid grower when young, and hardy north of the Manitoba line. It would make living posts on a line for a wire fence. If silver maple, Carolina poplar, box elder and hardy catalpa are used for nurse or fast growing trees in the narrow rows they can be cut out for fuel and kindling wood. The hardy catalpa if planted near the middle and as far away from the permanent trees as practicable may stand till its trunks are big enough for posts before they interfere with the permanent trees and have to be cut out. And here, too, to break the monotony of the straight lines plant a few groups of evergreens here and there on the inside of the belt.

POLLARDING TREES.

In suburban places where there are natural woods and the ground is bought for residence purposes the people would like to preserve many of the trees, but the trees having been grown close together in forest fashion, are long and naked stemmed, and as garden plants far from beautiful. What can we do about them —head them down, and if so when?

[Answered by Robert Douglas, Waukegan, Ill.]

Ans. Head them back severely when the foliage is off, and shorten in the side branches, leaving the lower ones the longest, and shortening those towards the top more closely, bearing in mind that the growth is strongest on the uppermost branches. When the tree is without branches to a height of 8 or 10 feet leave the tree a bare pole to the height of 10 feet. Make the cuts sloping downward. In early summer when the tree has thrown out new branches a few inches in length leave the strongest one for a leader and others to form side branches, rubbing off the remainder with thumb and finger.

WHEN TO PRUNE DECIDUOUS TREES when there are large limbs to dismember?

Ans. Prune in any mild weather after the fall of the leaf in autumn and before sap starts in spring. Cut the limbs sloping with the slope on the under side of the limbs.

WHAT TO PAINT THE WOUNDS WITH.—In pruning off large or fair sized limbs the wounds should be cut smooth and painted. But amateurs who have only a few trees to prune and paint the wounds on will never bother to make up special preparations for painting with, they want something already made up or that can be readily obtained. What should they use?

Ans. Cover the wounds with a rather heavy coat of linseed oil paint well rubbed on. Let the paint conform to the color of the bark of the tree; a little lamp black or even soot from the chimney may be mixed with it for color.

PRIVET HEDGE.

O. D., Fall River, Mass., asks: 1. Would a privet hedge do well on the north side of a dwelling, four feet from the wall, and where it would get only two hours' sun in summer mornings?

2. I wish to fill in two feet where I have a privet hedge at present. Would it kill or harm the hedge very much to do so, or would the hedge make new roots in the new soil?

1. It is a question of hardiness mostly. If the privet is hardy enough with you the absence of sunshine won't kill it if the plants are not shaded by overhanging trees or buildings. But the common privet (*vulgaris*) will thrive there better than the California one.

2. If it is a California privet, this winter may kill it down a little. Were it ours we would head it down a good deal, then root it out, fill in the soil to the proper level and replant the hedge. Or, rather, we would discard the old hedge and plant a young one in its place. It takes considerable attention to get a good bottom on an old plant.

MAGNOLIAS.

G. W. M., Philadelphia, writes:—"I wish to plant on a bank facing west and sheltered from the northwest winds, a mass of magnolias, say fifty, beginning at the base of the slight mound with low growing shrubby sorts, then with larger growing, finally with the trees, considering only those that are thoroughly hardy and sweet scented. Can you, or rather will you, give me the size of the stock you would use at time of planting, and the same group five years later? They would be well cared for."

Magnolia stellata, 2 feet, reaching to 10 or more feet; *M. parviflora*, 2 to 3 feet reaching to 10 or more; *M. Watsoni*, 2 to 4 feet, reaching to 10 or 12 feet, becoming a small tree under favorable circumstances, but it takes the Japanese die-back; *M. glauca*, 2 to 4 feet, and becoming a small tree; *M. conspicua* (only faintly fragrant), 3 to 4 feet, and attaining the dimensions of a small tree; *M. tripetala*, 3 to 4 feet, becoming a small tree; *M. macrophylla*, 3 to 4 feet, grows to be larger tree than the last; *M. Fraseri*, 3 to 4 feet, becoming a middle-sized tree, and *M. hypoleuca*, 3 to 4 feet high, and getting to be, we expect, quite a fair-sized tree. It makes a timber tree in the mountains of northern Japan, and while there are no large trees of it in this country, its rapidity of growth, hardiness and health as shown at Dosoris give good promise that it will make quite a tree. We can not include the *obovata* and hybrid Chinese magnolias, or cordata, because of their lack of pronounced fragrance. And we cannot give even approximate heights for the plants five years after planting, because while they may grow pretty well the first five years, they are then only entering on their life of rapid progress. They need good, deep worked, friable, loamy soil, that is moderately moist, and all love good drainage and shelter from cold winds.

NORWAY SPRUCE.

J. P., Rochester, N. Y., writes: "Last spring I planted 200 Norway spruce, 3 to 4 feet high and perfect beauties. They were well cared for during the summer and went into the winter looking green and thrifty. But now (March 6) they are a great disappointment. They were planted on a bluff bordering the Lake (Ontario), a bleak exposure enough. Heretofore Norway spruce have always proved satisfactory, but were planted in a more favorable locality. Would Scotch or Austrian pines have done better and not gone so much off color?"

The pines would have kept their color better than the spruce, but plants of them 3 to 4 feet high would have been bigger than we should care to plant in an exposed place. Pines keep their color in winter pretty well, notably the Swiss stone pine; silver firs keep it better than most evergreens, for example the Nordman, and spruces the poorest of the three, the Norway and its forms being the most changeable. The white spruce would have kept its color better than the Norway, so too would the one color green varieties of the Colorado blue spruce, but they are slow growing.

SHRUBS FOR MILWAUKEE.

In GARDENING for February 15, you gave a list of "Flowering shrubs for Milwaukee." You need to strike out of that list *Clethra alnifolia* and I fear also *Euonyous Europæus*. But you might add to the list considerably, *Wiegelia rosea*, for instance, and *Amelanchier*. May I add that I have nothing finer than lilac Frau Bertha Damman? It is magnificent. [The list we gave was kindly suggested by a gentleman in Minnesota and who has had considerable experience. —Ed.] ALBERT SALISBURY.

Wisconsin.

Roses.

ROSES IN CALIFORNIA.

Undoubtedly Mr. Stewart of Memphis (page 88) is correct in his conclusion that roses have their preferences. While here in California roses in every class and variety, in general, succeed as now here else on the continent, yet in nearly all classes there are individual exceptions and Clothilde Soupert does not stand alone. For instance, of hybrid perpetuals Gen. Washington, Madame Chas. Wood and Dins more come misshapen, Her Majesty mildews, and American Beauty out of doors behaves so perversely as to fairly deserve the appellation of American ugly which a rosarian friend bestows on it. In the tea class Marie Guillot is perhaps the most conspicuous failure. It grows well, produces buds in profusion but of no

CRIMSON RAMBLER ROSE

beauty. Not one in a hundred will open well. Madame Bravy, except under the most favorable conditions, is a disappointment, and Etoile de Lyon mildews so badly as to destroy its value almost entirely. The hybrid teas while giving us the best roses extant have in their number some not worth standing room. Michael Saunders will not open its buds and Puritan gets so sick from mildew as to be utterly worthless. Even the grand old Bourbon Souvenir de la Malmaison needs the kindly shade of a picket fence or something of the kind to shield it from the ardent gaze of the midday sun or the buds will burn. Many other sorts that have a good reputation elsewhere do but indifferently here. Verily it is not more important to know what to plant than what *not* to plant, especially where space is limited.

Most of us grow roses for the pleasure and satisfaction they afford. Hence we loyally adhere to some we learned to love in auld lang syne, which is well. Beyond these we may as well have the best. In a future article I hope to give a list of sorts that may be relied upon to give satisfactory results here, but can not answer for their conduct elsewhere. H. G. PRATT.

Fruitvale, Cal.

CRIMSON RAMBLER ROSE.

In GARDENING, August 1 last, page 372, we gave the history of this rose. It is a Japanese rose of the Polyantha class, and was introduced to this country by way of England, where it is a wonderful success. It is a vigorous grower and can be used as a trellis or pillar rose or as a bush plant, and we have every reason to expect that it will be perfectly hardy here. Its flowers are quite small but double, crimson in color, and produced in terminal clusters or panicles, and very pretty. It is so little known among us that we don't know what its faults are, if it has any. Mr. W. C. Egan says it mildews with him. With us Polyantha roses in general are not subject to mildew, but they grow well, keep well and bloom well, unfortunately, however, the rose bugs seems to have a great fondness for them. In defiance of all this, however, we must have the Crimson Rambler.

We are indebted to the courtesy of Messrs. Ellwanger & Barry for our illustration of this rose, they had it engraved from a photograph of a spray in bloom in their own nursery. They say of it: Its color "is of the brightest crimson, and which remains undimmed to the end, showing none of the objectionable purplish tint so common in crimson roses. The flowers are produced in great pyramidal panicles or trusses, each carrying from thirty to forty blooms, the individual flowers measuring about one to one and a half inches in diameter and remaining perfect on the plant for upwards of two weeks with their freshness of color unimpaired."

Greenhouse and Window.

THE GREENHOUSE.

Our conservatories should now be gay with a great variety of flowers. Among these are Chinese and obconica primroses, belated cyclamen, cinerarias in their greatest glory, marguerites, carnations, nasturtiums, heliotrope, callas, sweet alyssum, geraniums, oxalis of various kinds and colors, speciosa fuchsias and Zanzibar balsams. Add to these many begonias as *rubra*, Paul Bruant, *odorata*, *manicata*, *fuchsioides*, and the like. Forced bulbs add greatly to the display, for example hyacinths, tulips, daffodils, freesias, ixias, scillas, ranunculus and lily of the valley. Amateurs who love variety can have it by growing a number of annuals, as Swan River daisy, Virginian stock, mulleins, candytuft, balsams, nasturtiums, dwarf corn flower, Drummond's coreopsis, *Gypsophila elegans*, tigered mimulus, single petunias, Drummond phlox, schizanthus, and so on. But these annuals are more for conservatory decoration than for use for cut flowers; while many of them cut well enough, there is hardly body enough to them. Besides all of these we have the showy azaleas, golden genistas, airy acacias, elegant plumbagos, fragrant toxicophlæa, stiff camellias, fragrant olive, changing colored francisceas, bright hibiscus, and a good many other hard wooded plants. Forced shrubs from now on should also be a feature of our conservatories. *Deutzia gracilis* is the most accommodating and generally grown, but any of the early spiræas as *Thunbergii*, *Cantonensis*, *Van Houttei* or *Media* will force nicely if you bring them in slow. Dwarf lilacs are in good bloom now. Charles X, purple, and Marie Le Graye (when you get it true), white, are fine for this purpose. The Japanese Toringa crab apples, Colchican bladder nut, and most any shrub that blooms early naturally can be had in flower in March or April in the greenhouse.

TEMPERATURE.—Use less fire heat and more sun heat, but do not let the temperature get as low as the winter average. The plants have started to grow and need a little more warmth, say 50° to 55° at night for a cool greenhouse, and 65° for a warm one. With sun heat in the day time they may run 10° or even 20° higher.

VENTILATE.—Don't ventilate till the house warms up a little in the morning, then open the ventilators a little to begin with, and in an hour or so some more, and so on, humoring the ventilation according to the weather. Begin to shut up early in the afternoon to economise fire heat.

WATERING.—Let no growing plant suffer for want of water. When one gets quite dry water it two or three times till the water runs through out of the bottom of the pot. Syringe the cool houses in the morning, the warm ones in the morning and early in the afternoon. Don't syringe the plants in bloom in the conservatory overhead.

POTTING.—We like to have all the potting that can be done in winter finished before this, so as not to delay us in our spring work. But don't delay it any longer. See that every plant is in good condition at the roots, that there are no worms in the soil, that the drainage is perfect, and the earth is not sodden, pasty or sour. If repotting is necessary, attend to it at once. When you turn the plants out of their pots pick away the loose dirt and old drainage, and repot

into clean, well drained pots, keeping the plants quite as low in the new pots as they were in the old ones. Be particular about this. Don't fill the pots too full, but leave lots of room for water. Always pot firmly. Never overpot your plants; better err in using a too small than too large pot.

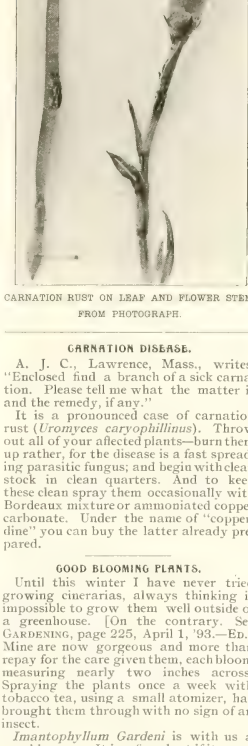
WHAT SOIL TO USE depends on what the plants are to be potted. Most all vigorous rooting, hearty feeding plants as roses, callas, geraniums, fuchsias, calceolarias, cinerarias, and the like will thrive in the one kind of soil—good fibrous loam with lots of rotted manure in it. Less vigorous plants like primroses, begonias and cyclamen may get less manure. Fibrous rooted plants like heaths and azaleas may have leaf mould substituted in place of manure. The same with camellias, ixoras, crotons, dracænas, toxicophlæas, tabernæmontanas, etc. Marantas, anthuriums, and plants of that nature, if in very vigorous health and moderately small pots like rich fibrous soil; if not, less manure and more porosity will suit them better. Even young ferns like rich soil.

PREPARE FOR SUMMER by potting up some old gloxinia tubers, also tuberous begonias, spotted leaved caladiums, achimenes and gesnerias. Don't rush them, let them come along leisurely and they'll make finer plants. Repot the Lady Washington pelargoniums, young genistas, young fuchsias, double petunias, small Rex begonias, screw pines, and other plants we hope to make our conservatories gay with in summer.

SOW SEEDS of gloxinias for summer and fall flowers, of tuberous begonias for fall, of Chinese, obconica and Forbesi primroses for next winter's blossoms; also of the beautiful hybrid streptocarpus, they too will bloom in winter. If you haven't sown any cyclamen do so now, and keep the seedlings in active growth all summer; they should bloom next March. Don't sow calceolarias or cinerarias yet, it is much too soon.

OLD PLANTS THAT HAVE DONE BLOOMING.—When stevias are done blooming we cut down and save a few to give us cuttings, and throw out the rest. The same with marguerites. We strike a fresh lot of cuttings of carnations, libonias and sericographis from cuttings every year, throwing away the old plants. As soon as the eupatoriums are done blooming cut them half way down, let them start to grow a little first and then repot them. Put in a few cuttings for young plants; the same with *Ruellia macrantha*. When freesias are done blooming keep them green and growing so as to make good bulbs for next year's work; they improve and increase year after year. Hyacinths, tulips and narcissus that come into bloom from this on should also be kept on for further work; although they may not be of any use for forcing next winter, if they are planted out in September they will in another year give nice outdoor blossoms. Also keep over your Easter lily bulbs, and when the season is over plant them out in the garden and let them stay there till next August, or better still for another year, mulching them in summer.

COLD FRAMES.—Although the spring has come and the sun is warm and tempting, don't uncover the frames and expose them too much, for the winds are cutting and plants suffer. Pansies, violets, polyanthuses, anemones, ranunculus, perennial candytuft, forget-me-nots, daisies, and other favorites, will soon be in all their glory. Give them plenty of light and air, and lots of water if they need it; keep them nice and clean; expose them in warm sunny weather, but protect them from cold, raw, wet weather, and don't let frost reach them. It isn't a question of hardiness with them, it is one of healthy growth and perfect blossoms. We often plant these flowers in the frames in fall about four times thicker than they ought to be if all were meant to stay there to bloom, our intention being to lift the surplus in spring and plant them out into the open garden. Do this as soon as practicable, but not while the weather is inclement or the ground in a paste or puddle.



CARNATION RUST ON LEAF AND FLOWER STEM FROM PHOTOGRAPH.

CARNATION DISEASE.

A. J. C., Lawrence, Mass., writes: "Enclosed find a branch of a sick carnation. Please tell me what the matter is and the remedy, if any."

It is a pronounced case of carnation rust (*Uromyces caryophillinus*). Throw out all of your affected plants—burn them up rather, for the disease is a fast spreading parasitic fungus; and begin with clean stock in clean quarters. And to keep these clean spray them occasionally with Bordeaux mixture or ammoniated copper carbonate. Under the name of "copperdine" you can buy the latter already prepared.

GOOD BLOOMING PLANTS.

Until this winter I have never tried growing cinerarias, always thinking it impossible to grow them well outside of a greenhouse. [On the contrary. See GARDENING, page 225, April 1, '93.—ED.] Mine are now gorgeous and more than repay for the care given them, each bloom measuring nearly two inches across. Spraying the plants once a week with tobacco tea, using a small atomizer, has brought them through with no sign of an insect.

Imantophyllum Gardeni is with us a sure bloomer. It is a fine plant if it never bloomed, and requires but little care. Its long dark green leaves are very attractive. At this writing (March 5) our plant has a scape with fifteen flower buds, some of them almost ready to open, a pleasing sight to a flower lover.

A PRIMULA OBCONICA standing in the northeast corner of the conservatory getting but a touch of the morning sun has been loaded with bloom all winter. It seems the one plant that florists do not exaggerate, mine being equal to any catalogue cut. It is poisonous to some, so leave the blossoms on the plant. Cut the dead leaves off with the scissors and do not handle it. [*Primula obconica* is grand. At Dosoris we grow about a hundred plants of it in a cool greenhouse associated with cinerarias, calceolarias and Chinese primroses, and it blooms extravagantly from November till April. We grow it for cut flowers. It loves cool treatment, thin shade, somewhat restricted pot room but plenty water, and it should be raised afresh from seed every year. In cleaning the plants or picking the flowers use a pair of old gloves. It doesn't poison everybody; and really although the irritation is disagreeable it isn't dangerous.—ED.]

MY GLOXINIAS are in bloom, and have fully as many buds as usual, and the foliage is of good color, but there is something wrong, the leaves curl at the edge. A strong glass fails to show any season for it. Can some one tell what is wrong, and give a remedy? [Send us a diseased leaf.—ED.] L.

Conn.

THE WINDOW GARDEN.

Growing in our living room and adjoining bedroom, each having south-facing windows, are cyclamens (one corm is ten years old and blooms every winter) geraniums, single petunias, abutilons, lantanas, oxalis, Zanzibar balsam, *Linum trigynum*, roses and Rex begonias. The begonias are sitting on a table where they get scarcely any sun. The roses are tea scented and were grown from cuttings since August, and are grown in a south window near the glass and on the top sill. I always grow them in this way and always have some roses in winter. I give them a bath every morning. I have many other plants in these rooms, but those mentioned are the only ones now in bloom. My bulbs were potted and are barely in bloom yet.

In an east bay window in a dining room I have many varieties of begonias and callas and carnations. Here I also have *Bignonia capreolata* trained over the arch of a wire stand, and it blooms beautifully in February. It always blooms twice a year with me, in February and June. I also have one at rest in the cellar that will bloom next summer. I have grown this vine for many years and prize it highly.

Gloxinias that have been resting in the same dining room are starting into growth, so too are some tubers of begonias. The begonia roots are kept perfectly dry in winter, but I give the gloxinias a little water about once a week if the weather is not too cold, giving enough to slightly moisten the soil only, and I find that they keep better when so treated than when kept quite dry.

I have a good collection of cacti, and winter them all in the cellar. They bloom abundantly in summer. I give them lots of water in summer, but none in winter; they haven't had a drop since November last. MRS. J. D.

Alexander, Ill.

INSECTS ON PLANTS.—J. C. D., Madison, Conn., has got them on his rose geraniums, heliotrope and roses, and he cannot

THE WINCHELL GRAPE. [REDUCED]

get rid of them. We suspect they are greenfly. Tobacco is the remedy. Go or send to a cigar factory for a lot of fresh tobacco stems, say 25 or 100 pounds (if you have a greenhouse you may need several hundred pounds; it is very cheap) and a few pounds of fresh tobacco dust. Or you can send to your seedsmen for them; they keep such things in stock. If your plants are in a greenhouse you can shut it up tight some evening and fumigate it. (See "insects," page 182, in GARDENING, March 1, also page 122, January 1, 1894.) But if your plants are in your window, don't fumigate them either in the window nor put them into a cupboard and smoke them there, as some recommend, nor take them down cellar for the same purpose, no matter whether shut into a closet or put under a wet sheet raised tent fashion, for the smoke, which is exceedingly obnoxious, will find its way into every room in the house. Instead make a tobacco water or tea, as recommended March 1, page 182, and dip the plants into it. Or you may thoroughly wet the plants, then dust them over freely, especially the growing tips, with the tobacco dust or snuff. Of course this will be unsightly, but by syringing or dipping in clean water you may wash it off next day.

The Fruit Garden.

A FEW GOOD GRAPES.

No matter how small the garden may be there is room in it for a few grapes. We can cover an arbor with the vines, tack them on the fence or wall of the house, or tie them up to the clothes line poles, cover a trellis with them to hide away some out-building, or make some other such provision for their support if we are pinched for room. But if we have plenty of room how nice it is to have a string of trellis for the grape vines, or as some prefer, a row or two of plants tied to stakes. The early spring is an excellent time to get and plant grape vines.

Some varieties do better in one place than in another, but the following kinds seem to do well generally:

BLACK.—Worden, large bunch; large compact berry, of good quality, and ripening a few days earlier than Concord. Concord—when well ripened it is a pretty good grape, and the plant is healthy and productive and succeeds most everywhere.

RED.—Brighton—Of good size of bunch and berry, and when well ripened its quality is excellent. Delaware—Although the berries are small they are very sweet, and the bunches compact, and while the vine is slender it is healthy and very fruitful.

WHITE.—Niagara—It is among white grapes what the Concord is among black ones, and seems to be as healthy and prolific. The bunches and berries are large. Winchell or Green Mountain—A new grape that has given satisfaction over a large part of the country. The vine is healthy, vigorous and prolific; the bunches and berries are of good size, and the fruit of uncommonly good quality. It ripens two weeks earlier than the Concord. For our illustration we are indebted to the courtesy of Messrs. Ellwanger & Barry, Rochester, N. Y. What a beautiful and truthful picture it is.

BARK SCALE ON APPLE TREES.

O. D., Fall River, Mass., writes: "Last fall I noticed a white bark scale on one of my crab apple trees, and although I soaked the scale then with clear kerosene, it seems to stick there still. Sample sent herewith."

It is the common bark scale. What you regard as living insects are the dead shells of last year's scales, but underneath these shells are the eggs which, in the natural course of things should hatch out in May and give the brood of depredators for this year's work. Take a large-sized old paint brush and shorten the bristles so as to make the stub into a stiff scrubbing brush and with this rub off the scales now or scrape them off with a knife and at once syringe or spray with extra strong kerosene emulsion. This will destroy whatever eggs are exposed after scrubbing. About the middle of May and again the first of June, and the middle of June dew the trees again with kerosene emulsion of ordinary strength to kill the hatched out young scales. But at that time be careful you don't hurt the young leaves on the trees as well.

ABOUT PLUMS.

Rochester and its vicinity seem to be favored, both in soil and location in the matter of plum growing. Last fall we had an immense crop of fruit of nearly all varieties, bringing the price of plums down to 50 cents per bushel, while prunes brought $1 per bushel at wholesale. Of course some few varieties nearly always set a crop, notably Lombard, which has given to it, although not a first-class fruit—an extended reputation and sale. Several years ago Ellwanger & Barry, and a very few others in this section resorted to jamming the trees early in the morning for a certain time, and destroyed the captured curculios. This limited their ravages, and rewarded their labors with a partial, or full crop of fruit. I doubt hower if jamming is now much resorted to. From my own observations, I have noticed that a crop of fruit usually follows fine weather when the trees are in bloom, then the trees set so much fruit that if a great quantity drops off enough is usually left on to afford a satisfactory crop.

Much interest is now being centered in the Japan kinds, which are now on probation. I think it is, however somewhat of a fad, as it seems to me these new introductions cannot drive our old tried varieties out of cultivation as some so emphatically predict. I am pleased at their advent, and am watching their behaviour with interest. [Although the varieties known as Japanese plums may have been raised in Japan botanists are inclined to believe that there is no true plum tree indigenous in Japan at all, and that the original parents of these so-called Japanese plums are natives of China.—ED.]

Rochester, N. Y. JOHN CHARLTON.

RAISING STRAWBERRY PLANTS FROM SEED." By the time the exhibition was over most of the strawberries were half decayed, but the exhibitor gave me the plates of his berries that I wanted. Half rotten as they were I brought them home carefully, and washed them out to get the seeds from them, and these I sowed in a narrow border on the north side of a wall, then covered them over with dry hay and watered them. Early in the fall the seedlings came up by the thousand. They ought to fruit next summer, then won't I and my friends have some fun testing new varieties?" So writes one of our readers.

PRUNING FRUIT TREES AND BUSHES.—If any pruning that may be needed hasn't already been done, attend to it as soon as possible. Just as soon as the frost is out of the ground, we enter spring gardening with a rush, and probably have less time then than now for finishing up the pruning.

GARDENING

WILLIAM FALCONER, Editor.

PUBLISHED THE 1ST AND 15TH OF EACH MONTH
— BY —
THE GARDENING COMPANY,
Monon Building, CHICAGO.

Subscription Price, $2 00 a Year—24 Numbers. Advertising rates on application.

Entered at Chicago postoffice as second-class matter.

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All communications relating to subscriptions, advertisements and other business matters should be addressed to The Gardening Company, Monon Building, Chicago, and all matters pertaining to the editorial department of the paper should be addressed to the Editor of GARDENING, Glen Cove, N. Y.

GARDENING is gotten up for its readers and in their interest, and it behooves you, one and all, to make it interesting. If it does not exactly suit your case, please write and tell us what you want. It is our desire to help you.

ASK ANY QUESTIONS you please about plants, flowers, fruits, vegetables or other practical gardening matters. We will take pleasure in answering them.

SEND US NOTES of your experience in gardening in any line; tell us of your successes that others may be enlightened and encouraged, and of your failures, perhaps we can help you.

SEND US PHOTOGRAPHS OR SKETCHES of your flowers, gardens, greenhouses, fruits, vegetables, or horticultural appliances that we may have them engraved for GARDENING.

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DOUBLE SHIRLEY POPPIES.—Debased wretches, away with them! The very fact that they are double debars them from the title of Shirley. The Rev. W. Wilkes, of Shirley, near Croydon, England, spent fifteen years in obtaining and perfecting this strain of poppies, and double flowers were one of the points he uncompromisingly objected to. The Shirley is single and semi-double and nothing more, and a double flower is a rogue—a weed, a degenerate renegade, and should be rooted out. The Shirley poppies have been bred and selected from *Papaver Rhœas*, the common field poppy of Europe. From the same source come the double carnation and ranunculus flowered poppies, of vast variety and now hoary with age. Doubling the Shirley is making a weed of it, and there is nothing new about it.

ANEMONE JAPONICA WHIRLWIND, the semi-double white-flowered variety, is being got propagated and planted by some florists for cut flowers in fall. The partial doubling of the flowers helps to prevent them dropping their petals. And blooming as they do from August till October they are in season when neat white flowers are not over plentiful. They are propagated from cuttings of the fleshy roots.

IN SOWING FINE SEEDS, as of gloxinias, begonias, streptocarpus, calceolarias, etc., if you find any difficulty in distributing them equally over the soil mix a little fine dry sand with the seeds before sowing them, this adding to the bulk enables one to scatter the seed with more regularity than we could without it. In some of these packets the seeds are just as few as they are tiny, and the rarer and more expensive they are the fewer they are.

CHINA ASTER SEED.—The great bulk of this seed is grown in Germany, our seedsmen importing it from there. But last year, in consequence of unfavorable weather in Germany, the crop of aster seed was short and of poor quality, indeed the yield of Victoria aster seed was very limited. Truffaut's Improved Pæony Perfection, which is somewhat similar in habit is substituted for it. China aster seed is one of the crops we can raise very well in this country, and some of our seedsmen do grow it.

ASCLEPIAS NIVEA is a small but healthy and very free-blooming tender species that thrives admirably out of doors in summer and blooms abundantly after July. Its flowers are white, and although small they are numerous, and useful for cutting. It likes good soil just as well as any other plant, but will also live nicely and bloom well in ground so warm and dry in summer that most other plants would fail in it, and we like it on this account, and plant a clump of about fifty plants of it every summer.

COBEA MACROSTEMA is a seed novelty this year. It is a fast growing vine a good deal like the common *Cobæa scandens*, but its flowers are of a yellowish hue and not as showy as those of the latter; its stamens, however, are twice as long as the corolla and give the flowers a fantastic appearance. It is easily raised from seed and the seedlings bloom freely when planted out in a warm place the first summer. But why is the seed so scarce? If sunny Italy were equal to California for raising seeds the case might have been different.

THE LITTLE GEM CALLA is not giving general satisfaction, it doesn't bloom enough. It is quite different from the ordinary big calla, and its compact or half size variety, and when it behaves well is interesting and pretty. But there is no use disguising the fact that it is a disappointment. Under special treatment it may bear lots of blossoms, but given ordinary cultivation it is very sparing of its blooms. Restricted root room forces it to flower. And its flowers, even as miniatures, can not be compared with those of the big callas in purity or beauty.

THE PRIZE FOR THE PLAN FOR A TERRACE.—In our issue of Dec. 15 last, page 107, one of our readers offered a prize of $20 for the best plan of planting a garden terrace. Plans were duly received by the editor of GARDENING, and last month they were submitted to Mr. Elliott for his opinion. One sent in by Mr. H. A. Caparn, of Pennsylvania, being considered the best he was awarded the prize. Under date of March 1 the donor writes to us: "I enclose you herewith $20, which be good enough to hand to Mr. Caparn, who has fairly won the prize."

SWEET PEAS.—Just as soon as you can work the ground get your sweet peas into it. They love good, deep soil. Draw out the drills four or five—many draw them six—inches deep, and sow the seed, but don't cover it more than two inches deep to begin with; wait for the balance of the covering till the peas begin to grow, and even then simply hoe it down in cultivating, don't draw or shovel it in. Mrs. Sankey, white; Cardinal, scarlet; Boreatton, dark purple; Mrs. Gladstone, soft pink; Blanche Ferry, pink and white, and Countess of Radnor, lavender, are a fine half dozen.

FALL SOWN SWEET PEAS.—A correspondent in writing us says he doesn't know whether fall sown sweet peas do well or not. We can assure him that they do, and they bloom two to three weeks earlier than do the spring sown ones. But we don't stake or tie up our sweet peas over winter, simply let them lay on the ground, and spread a little sedge grass over them when we mulch our strawberries in December, and remove it in early spring at the same time. We stake them in spring. And where they are very thick we dig them up and transplant them, for sweet peas transplant very well. In the fall they should be sown on the level and not in deep rows or trenches.

THE LAWN MOWER.—Don't wait till the grass needs cutting before having the lawn mowers fixed. If there is anything the matter with them note it and call the attention of the blacksmith or machinist to it. If there is anything seriously wrong with one of them, the repairs may cost more than the machine is worth, and it may be better and cheaper to get a new machine than repair the old one. We look over our machines about this time, chalk mark what we know needs repairing or renewing, then forward the machines to the factory where they were made with the request that, if found worth it, they be properly repaired. Do this now and you are likely to get a pretty good job, but wait till into April or May and you may not get such good attention.

"NOT IN THE FASHION" in this town (Uniontown, Pa.,) is how a reader describes her garden. She wants borders of shrubs, vines and many flowers along the division fences and where she can see them from her window, and to have her lawn open and free from patchy beds. Her neighbors advise her to put the borders around the house, and have none along the fence, but make plenty of flower beds on the lawn in front and fill them with one kind of plant—a coleus, or geranium—in each, and all so as to make a fine show from the street. She writes: "If you say the borders must go, there is no further question to be considered." Well, we say DON'T. Your letter has come to us too late for consideration in this issue. In next number of GARDENING we hope to show you a plan of a little town garden that may interest and help you. But we won't show you a lot of flower beds scattered over the lawn, such gardening being entirely "out of fashion."

THE VARIEGATED BALM, a hardy, herbaceous, old fashioned plant, makes an excellent addition to our list of plants

suitable for filling mixed vases of plants for outdoor use in summer. Give it rich earth, good drainage and plenty of water, and it will luxuriate in summer. Rest it in winter.

The Vegetable Garden.

MUSK AND WATER MELONS.

A very interesting article on musk melons in GARDENING for March 1, leads me to send you for trial some seed of a variety I have grown for years called the California citron. It is of fine quality, uniformly large size and productive. The flesh is salmon color. I have found that it likes a good heavy soil. In growing water melons on Long Island I find with me the two best varieties are the white seeded ice cream and the Phinney, both being of uniformly good size and quality combined with a greater number of melons in a test of 20 varieties. In growing the Phinney in Virginia it is apt to sun scald. In the south I found the Dixie and Florida Favorite to give the best of satisfaction. A choice water melon of local reputation is the Muskill, grown on the eastern shore of Virginia claimed to be the finest in quality, but not suitable for shipping. The seed of this is scarce and high priced, and seldom obtainable from the trade. Should any of your correspondents favor you with a little seed of the Muskill I warrant you will look forward to the enjoyment of water melons with more interest than ever before. [Can any of our friends kindly let us have a few seeds of the Muskill water melon for trial at Dosoris?—ED.]

Long Island. SILAS L. ALBERTSON.

VEGETABLES IN THE SOUTH.

Here it is the 6th of February and not a seed in the ground yet! We are a month behind. We most always get our potatoes planted early in January, and it is better still to do it in November. In the north you sow and plant as early in the spring as the ground will permit; with us it is better to do this as late in the fall as the ground will allow. Then the seeds will lie dormant in the earth while the weather is cool and start to grow with the coming of spring. These late sowings should consist of peas, carrots, parsnips, beets, salsify and other hardy vegetables. But if they haven't already been sown sow them now as soon as possible. Onions sown in the fall are now ready for transplanting, and should be attended to. If you haven't raised any get some sets and plant them. Cabbages and cauliflower sown in fall should be planted out now.

We make up hotbeds in December and sow tomatoes, beets, snap beans, lettuces, etc., in them. Those who have neglected to make a hotbed before this should attend to it at once so as to give these crops as early a start as possible, and get them transplanted out of doors while they have cool moist weather enough to perfect themselves. Beets, especially, should never be left to "bulb" in the seed row; always transplant them.

Memphis, Tenn. JAMES STEWART.

STORED VEGETABLES.

Look over carrots, beets, turnips, salsify, scorzonera, parsnips and horse radish and see that they are keeping all right. If any are rotting remove them; if any are wet take them out from among the others. If any of these roots are sprouting rub off the sprouts, for they rob the roots of their good taste and tenderness. The same with potatoes and Jerusalem artichokes.

About this time you will agree that white hearted cabbage is a pretty tasteless vegetable and wish for something fresh and green. Now, if you had selected undersized Savoy cabbage that weren't old enough to have hard white hearts at pitting time last November, and packed them heads up and close together, with roots in the ground, in a cold frame or pit, we believe you'd like them better. This is what we are using. And heeled in right up close together in a cold pit we have lots of Brussels sprouts yet, and have been using them all winter; that's the dainty vegetable and it is always green and tasty. You can grow it just as well as cabbage, and have it good till the first of April.

Celery in the pits and trenches outside if it has been well covered over winter is all right yet, but the sooner you dig it up and examine it and clean it from all decaying parts the better; then pack it again in a cold pit, shed or cellar where it can be kept cool and dry overhead. Just as soon as pleasantly warm spring-like weather sets in celery starts to grow or to rot; in growing the stalks become slender, brittle, watery and tasteless. Keep it cool. In covered cold frames spinach is in fine using condition. As it is being cut out we use the frame for a hotbed for lettuces. We have had fair lettuces in the cold frames all winter but now it is tough; hotbed lettuces, however, will soon be in to displace it.

Miscellaneous.

NOTES FROM CALIFORNIA.

On this 11th day of February a gentle rain is falling and the temperature is close to 60°. For two weeks last past the weather has been delightful with a trace of frost every morning, but not enough to kill any except the tenderest plants. All through the month of December and the greater part of January rain fell almost continually, and sometimes heavily, so that the earth became saturated, and it took the first week of our late good weather to dry the ground so we could plow and put it in condition to plant. The balance of the time was utilized in planting early potatoes, peas, lettuces, carrots, beets, etc. After the present storm is over we will plant early corn, beans, squashes, in fact everything but the tenderest of plants. As a rule the most of our garden vegetables are planted in February, but this season is late.

FRUIT TREES are swelling their buds, but except in a few of the warmest localities no blossoms have yet opened, though not unfrequently the almond and Persian prune (*Prunus Pissardi*), bloom in January. By the way, this latter tree is altogether too much neglected. As an ornamental tree it is shapely and a robust grower; the foliage being a purplish brown is always attractive and the fruit though rather small, is excellent for cooking or canning; being neither too sour, like most plums, nor too sweet like most prunes.

ROSES.—In the flower garden we have still plenty of roses of the Tea, Hybrid Tea, Bengal and Bourbon classes, though the wet and chilly weather has to some extent impaired their beauty.

DAFFODILS are in their glory and paper white and Chinese narcissus beginning to bloom profusely.

VIOLETS have been flowering to some extent since December last, but it will be March before they are at their best. The Czar or Russian is the leading commercial sort, with Marie Louise a close second, the former a dark blue single flower and the latter light blue and double. Both are very sweet and pretty, but the Russian has the advantage of being the better grower, and the flower stems are longer. The new violet "California" is just now creating a considerable sensation. It is perhaps too soon to express a decided opinion as to its merits farther than to say that the flower is very large and borne on a stem that may safely challenge comparison with any of its kin. Should it prove as prolific and of as easy culture as the Russian violet no doubt it will push it hard for first place. H. G. PRATT.

Fruitvale, Cal.

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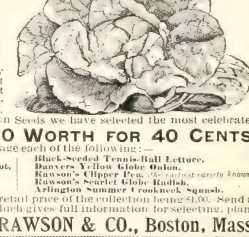

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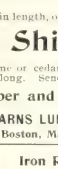

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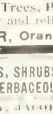

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IN RENEWING my subscription to GARDENING I desire to say that while your paper maintains its present standard I shall regard it as almost a necessity.
New Jersey. J. L. B.

I HEREWITH enclose check for renewal of my subscription to GARDENING. * * I am a crank about your paper and have every single copy of it in my possession from Vol. 1, No. 1, to No. 57. I subscribe to a great number of papers and magazines, but there is not a single one comes into my possession that is a more welcome visitor or that I get as much enjoyment out of as GARDENING. I congratulate you on the manner in which the paper is conducted. There is nothing selfish or stingy about it; the point I wish to make is the liberal way in which answers to correspondents on all practical questions submitted are treated. And in my mind this is what makes the paper so interesting and valuable to the amateur. J. F.
Brooklyn, Jan. 31, '95

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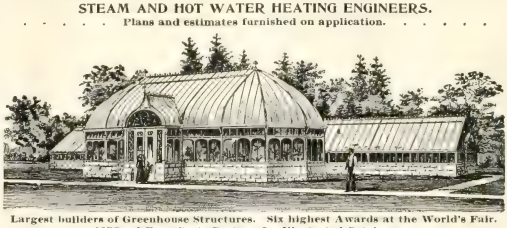

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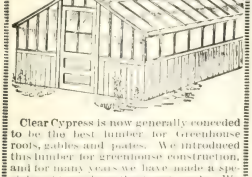

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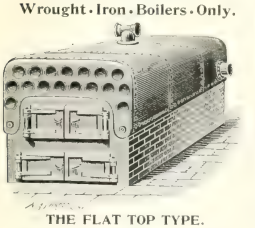

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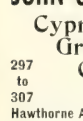

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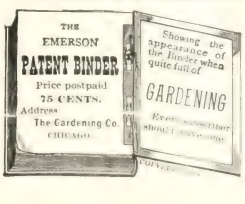

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GARDENING

Vol. III. $2.00 A YEAR 24 NUMBERS. CHICAGO, APRIL 1, 1895. SINGLE COPY 10 CENTS. No. 62.

LARGE FRUITED SWEET CHESTNUT AS GROWN AT DOSORIS

The Fruit Garden.

SWEET CHESTNUTS.

Our illustration, engraved from a photograph of a European chestnut tree taken at Dosoris last September, shows what kind of a garden tree a chestnut makes. When in full leaf it is a fine ornament, and when in bloom in summer its hoary head is quite conspicuous, but when the burrs begin to open in the fall and show the big brown nuts it is a sight worth seeing. The nuts are very large, and the tree a sure and heavy cropper. It is a grafted plant, standard high like an apple tree, about twenty years old, 19 feet in height by 22 feet in spread of branches. The proximity of other trees prevented us getting as good a picture of it as we would like. Beautiful engravings of a dish of its nuts, also of nuts of Paragon, Numbo and Japanese chestnuts, engraved from photographs taken here in '92 appeared in GARDENING March 15, '93.

There are three kinds of chestnuts in general cultivation, namely the American, which has the smallest and sweetest nuts of all; the European, the parent of our cultivated varieties, and the nut common in our markets, and the Japanese. All of them are grown for sale by our nurserymen. The American is usually raised from seed, and wild trees of local excellence are propagated in the same way or by splice grafting. Of the European chestnut we have several extra fine varieties, such as Numbo and Paragon, that are perpetuated by grafting on American seedlings. The finer Japanese sorts are also grafted plants. Their advantage consists in early bearing and large nuts.

This is the time to plant chestnut trees. Send at once to the nursery for three sorts, namely, Paragon, Numbo and Japan Giant. These have extra large nuts. Be very careful of them in planting not to let the roots get dry, for it is easy to hurt them. Wherever a wild chestnut tree will thrive a big fruited variety will also grow. While they prefer good ground any moderately fair land, even rocky and shady soil, will suit them. Prepare the ground for them as carefully as you would

for a choice lawn tree, they'll repay you in vigorous growth and early and plenteous fruit.

In planting trees about our homes why not set out some grafted chestnuts? They don't grow high like wild forest trees; they are comely and clean and make good shade trees, and they are a perfect joy to the children. Plant them in the orchard about as far apart as you would apple trees. We know that a grafted plant is the counterpart of its parent just as much as a Ben Davis apple or Bartlett pear is the same as the tree from which the cion that produced it was taken. But no one can foretell what a seedling may be. They will grow in the fence row, and a group of them in the pasture lot will give shade to the cows and horses, and bear nuts as well. A basket of big home grown chestnuts is a very nice gift to send to a friend. The young boys will fill their pockets with the nuts and bring them to school to astonish the other boys, every one of whom who can resist the temptation of eating them will plant them. And the father will do likewise when he goes to business in the morning to astonish the "boys" in town, when they will vie with each other in narrating the nutting experiences of their youth. Then they will bring home the big nuts and plant them and watch for the trees and the fruit, and there will be good will on every side.

SOME FRUIT NOTES.

DWARF PEARS AND APPLES.—My experience with dwarf pear trees has been very satisfactory, in fact I planted a number of them one spring and the next year one of them, a Bartlett, bore and ripened eleven fine pears. My dwarf apples are doing almost as we l.

FIG TREES WON'T RIPEN FRUIT.—I cannot get the fig to perfect its fruit here; it bears freely, but as soon as the figs are partially grown they dry up and fall off, although the foliage is healthy. [Quite a common trouble in the north especially in open places and on sandy land Try it in the shelter of a south or east facing wall or fence, in thoroughly drained loamy or loam and gravel soil. We have here just such a case as this, the figs on sandy land grow well but drop all their fruit, those on a loamy hillside in a warm sheltered place bear two crops of fine fruit a year. In both cases the bushes are bent down and buried in winter —ED.]

THE PARKER EARLE is the finest strawberry I have ever grown; it is firm, subacid, ripens all over, and it is a good bearer, devoting its growth to bearing rather than running. H. B. C.

Woburn, Mass.

FERTILIZER FOR FRUIT TREES.

J. T. M., Rahway, N. J., asks: "What is the best fertilizer for fruit trees, apples, cherries, and pears, and for grape vines, all several years old."

I have never found any other fertilizer for fruit trees and vines of all kinds, quite equal to pure well rotted stable manure. Apply this on the surface and fork it into the ground. If the manure is not old then place it on the surface around the trees, and let it decay there while the rains wash the juices down to the roots. Of course where stable manure cannot readily be obtained we must resort to commercial fertilizers. I think pure ground bone is one of the very best fertilizers for grape vines, and a quart of it can always be stirred in around the roots of a vine with excellent results. But here in New Jersey we need moisture more than anything else for fruit trees planted on our dry soils, and I depend more upon mulching than any kind of fertilizer, and if I could get nothing better I would use pine shavings or sawdust, but we can usually obtain better kinds, such as old leaves, straw, hay, or coarse strawy manure.

Ridgewood, N. J. A. S. FULLER.

SOME GOOD PEARS FOR NEW JERSEY.

The same varieties of fruit do not always succeed equally well in all soils, and sometimes our own individual taste is quite variable. But the following are really good sorts for an amateur to grow, and succeed well over a large area of country.

FOR STANDARDS.—Bartlett, Giffard, Sheldon, Howell, Anjou, Seckel, Boussock and Lawrence.

FOR DWARFS.—Clapp's Favorite, Tyson, Angouleme and Clairgeau.

Ridgewood, N. J. A. S. FULLER.

A FEW GOOD PEARS FOR ONTARIO.

Ontario has peculiar climatic conditions, being mostly surrounded by three great inland lakes; on the south Lake Ontario and Lake Erie wash its shores, and Lake Huron and Georgian Bay on the north and west. Fruit trees suitable for one section may be unsuitable for another part, for instance a pear grown along the lake shore may be a summer variety while a few miles back upon the mountain it would be classed as an autumn pear. But altogether, the following varieties do well here and are A1 in every particular.

FOR SUMMER. Giffard, Clapp's Favorite, Bartlett, Tyson.

FOR AUTUMN. Hardy, Flemish Beauty, Seckel, Sheldon.

FOR WINTER. Anjou, Glout Morceau, Josephine de Malincs, Goodale.

A. GILCHRIST.

West Toronto Junction.

DISEASED GRAPEVINES.—In answer to J. L., Milford, Pa.: The bit of leaf and flower sent in the little match box were too insufficient and dried up for us to give it proper examination. But your vines are badly infested with downy mildew. Bordeaux mixture is preventive rather than curative. Cold draughts, sudden and wide ventilation, hosing the vines too early in the morning of a dull day, or late in the afternoon so that they don't get dry before dark, or a dead raw atmosphere in the vinery, or a cold, sodden, undrained border, or a good many other causes will encourage mildew. Once started if not checked it spreads rapidly. Check it by favorable cultural conditions, make a paint of sulphur, clay and water and paint it on the heating pipes, or use linseed oil and sulphur, and with a powder bellows dust sulphur over all the diseased parts of the vines. Every leaf and flower and young tip now affected are spoiled for life; we can only stop or prevent the spreading of the disease, we can not cure damage already done.

WHEN TO PRUNE AN APPLE ORCHARD.—E. S. C., Mich., writes: "We have usually pruned our apple orchard in May or June but it would be so much more convenient to do it in April. Would that be right." It would be better. Cuts made in summer heal quicker than those made in winter, but anytime between October and April is good, in fact it is the general time for pruning orchard trees, and when the trees are leafless it is much easier to see what wants to be pruned, than when they are in full leaf.

TIE UP THE GRAPE VINES.—If they have been pruned and left above ground tie them into position and get done with them If on trellises use a stout cord or piece of marlin to tie the main stems, and light cord or matting will do for the vines and very little at that, as soon as the young shoots grow out they emit tendrils that fasten the vines to the trellises quite firmly.

Landscape Gardening.

A FAIRY WOODS-SHRUBS.

For floral effects our main dependence must rest on shrubs. Use them in thousands. Don't isolate them as specimens as one might in the garden or arrange them with any degree of formality, at the same time let there be meaning in the irregularity. Have no beds of shrubs or anything looking like a bed, but give the wood the appearance of nature in extravagance.

Consider the situation. Before setting out a tree or shrub decide upon what effects you wish to get, and strive to attain them. You want harmony and beauty on every side. Have distinct features, and avoid any approach to monotony. Have a proper selection of shrubs for every purpose, and do not attempt to grow anything under unfavorable conditions. Shrubs that prefer open places should be planted in the open, and those that love the shade, in the shade, and so on. Have an unbroken succession of shrubs in bloom from the Japanese witch hazel in March till our native one in October. Have shrubs in showy fruit the year round, from Standish's bush honeysuckle in May and June till Thunberg's barberry drops its fruit the following spring. And have pictures of tinted foliage.

We have a host of both native and exotic shrubs available for our purpose. But never lose sight of the fact that this is a wood and not a garden, and that single flowers and natural forms and tints alone are admissible into it. Double flowering shrubs as althæas, kerrias and double varieties of prunus, spiræa, etc., have no right to be here, they belong in the garden. Neither should we plant "double" snowball or hydrangea bushes, they have an artificial appearance, but the wild or "single" flowered forms are excellent for our purpose. While we can use to good advantage crimson leaved Japanese maples, purple leaved hazel and barberry and sometimes even the golden elder for distant tints, we must exclude two colored variegations, as of the Spath's dogwood, variegated elder, or althæa, or weigelia, or Indian currant.

In planting we know of no good reason why foreign and native shrubs should not be interplanted or associated, providing they belong to the same family group, for instance the spiræas of Japan and America, the wild roses of this country and of Europe, and so on. Secure foliage effects in the same way. While it is well to have one or two prevailing kinds of plants in an effect, many others may also be introduced to good purpose. No rigid border line should mark the group; while heavier in one place than another it should fringe off thinly towards the outside.

SHRUBS THAT BLOOM before their leaves appear in spring are always interesting,

PLAN FOR A THREE-QUARTER ACRE LOT

but those we could use in the wood are not showy. The Yulan and other Chinese magnolias that bloom while leafless belong to the garden; in the woods they would have a harsh and artificial effect. The ones for our purpose are the Cornelian cherry and its near relative *Cornus officinalis*, sweet gale, leather wood; spice bush, mezereon, shrub yellow root, and the like. If properly placed we could also use yellow jasimine, the vine-like forsythia and the spreading corylopsis. Of course our native witch hazel which blooms in late fall, and the Japanese yellow and purple-flowered ones that bloom in winter or early spring should also find a place; and close up against a south-facing rock in some warm nook we might presume to grow *Chimonanthus fragrans* which blooms all winter, Other April shrubs are Stadish's and fragrant bush honeysuckle, Genkwa blue daphne, Thunberg's spiræa, yellow and red flowering currants, and Japan quince.

IN MAY we have some of the above, and kerria, amelanchiers, Japanese redbud, many spiræas, beach plum, *Staphylea Colchica*, Tartarian bush honeysuckles, wayfaring tree, sweet shrub (*Calycanthus*), garden quinces (make pretty shrubs in bloom), Ghent azaleas, rhodotypes, neviensia, xanthoceras, barberry, chokecherry, *azalea amœna*, tree peonies, *Deutzia gracilis*, and *D. parviflora*, African tamarix, many spiræas, laburnum, high bush cranberry, symplocos, the showy *Rubus deliciosus*, black haw, exochorda, *Coronilla Emerus*, such early roses as *rugosa* and *alpina*, medlars, several viburnums, etc.

AND WE ENTER JUNE with andromedas and rhododendrons and the first of the kalmias. We also have Van Houtte's and other spiræas, Japanese Benthamia, white fringe tree, *Hydrangea vestita*, broom, *Ceanothus multiflorus* and *C. azureus*, mock oranges, styrax, weigelias, crenata deutzias, Læland's pyracantha, bladder senna, rose acacia, tree lilacs, Ibota privet, *Cytisus nigricans*, wild elder, *Spiræa Japonica* and its forms, stuartias and Imperatrice Eugenie hydrangea.

JULY comes in with stuartias, catalpas, Douglas' and willow leaved spiræas, Thunberg's hydrangea, wild prairie roses, oak leaved hydrangea, koelreuteria, yucca, *Lespedeza bicolor*, button-ball bush, *Cytisus capitatus*, *Hypericum aureum* and others, trumpet vine, clethra, dwarf horse chestnut, Bumalda and several other spiræas.

WITH AUGUST come Osbeck's sumach, calluna heaths, althæas, chaste shrub (*Vitex*), Chinese tamarix, *Clerodendron viscosum*, *Hydrangea paniculata* (the "single" one), Gordonia, dimorphanthus, *Clerodendron bungei*, and many second crop flowers of earlier blooming shrubs.

INTO SEPTEMBER a good many of the August flowers continue, notably the late-blooming form of *Hydrangea paniculata*. *Lespedeza Sieboldii* makes broad bushes dripping in purple, and *L. japonica* in white pea flowers. The white pappos of *Baccharis halimifolia* is as showy as blossoms and far more lasting. And if the *Caryopteris Mastacanthus* proves perfectly hardy it will add to our late blossoms. Now and later, however, the fruit and changing foliage of the shrubs are their greatest glory. And sunflowers, wallflowers and some other bold hardy plants and clematis and other vines make up the floral beauty of the woods.

In a later paper we will consider a few of the shrubs for special purposes, as for wet places, shade, etc., and for fruit and foliage effects.

PLAN FOR A THREE-QUARTER ACRE LOT.

The accompanying plan made for a gentleman in Hazleton shows a very convenient and effective arrangement for a small suburban place where it is desired to have some fruit and vegetables as well as flowers and ornamental planting.

The shrubbery is planted so as to screen the vegetable garden, which will be quite attractive in itself with its walks and flower borders. The clothes drying ground is screened by grape trellis. The stable and potting shed for the greenhouse are made to open on the alley, so there is no necessity for cutting up the lawn with a carriage drive, which is always to be avoided in quite small places when possible.

The trees shown in the plan between the sidewalk and the curb are pin oaks planted forty feet apart, with a Carolina poplar planted between each two oaks. The pin oaks are intended for permanent street trees, and for this purpose there is nothing finer, and the Carolina poplars are to be cut down when the oaks are large enough to be effective. The poplars have no permanent value, but in a new place are useful for temporary planting, for in good soil they grow with remarkable rapidity. I know of some that were one inch in diameter when planted and are now, after four season's growth, eight inches in diameter and twenty feet high.

EXPLANATION OF PLAN.

1. Dwarf pears.
2. 2. Border of herbaceous plants and spring flowering bulbs.
3. Hybrid perpetual roses.
4. Chinese rhubarb.
5. *Mœs pollia*.
6. Japanese snowball.
7. Weir's maple.
8. Massed planting of small tree, evergreens, shrubs, rhododendrons, etc., with groups of hardy plants in margin.
9. Colorado blue spruce.
10. *Yucca filamentosa*.
11. Rose flowered weeping Japan cherry.
12. Japanese maples.
13. 13. *Forsythia suspensa*.
14. *Magnolia stellata*.
15. *Eulalia gracillima* and *Eulalia Sieboldii*.
16. Mugho pine.
17. French cannas.
18. Weeping Norway spruce.
19. *Magnolia conspicua*.
20. Grape vines, grown on trellis.
21. *Clematis paniculata*, *Jackmanni* and *Henryii*, planted six feet apart to be trained on porch.
22. Hall's honeysuckle, planted four feet apart to be trained on porch.

J. WILKINSON ELLIOTT.

Pittsburg, Pa.

Trees and Shrubs.

A FEW TREES FOR DIFFERENT SOILS.

The following questions are by the editor, and the answers by Mr. Robert Douglas, Waukegan, Ill.

FOR LIMESTONE SOILS.—A few trees that like limestone soil? Ans. Deciduous—white oak, burr oak, in fact all the white oak family, also hickories and walnuts. Evergreen—spruces, firs, arbor vitæs.

TREES THAT DISLIKE LIMESTONE? Ans. Deciduous—beeches, chestnuts. Evergreen—rhododendrons and several other broad leaved evergreens. As far as I have had experience I find no limestone soils in which hardy trees, except the few just mentioned, do not grow successfully.

TREES THAT PREFER CLAY SOIL? Ans. Deciduous—all the white oak family, hickory and walnut. Evergreen—firs, spruces and arbor vitæs.

TREES THAT DISLIKE CLAY SOIL? Ans. Deciduous—birches, European larch, black cherry. Evergreens—pines, junipers.

TREES THAT THRIVE IN SANDY OR GRAVELLY SOIL? Ans. Deciduous—all the red and black oak family, wild black cherry, birches, maples, European larch. Evergreens—the pine family and junipers. Nearly all trees thrive on sandy or gravelly soils unless we call sand dunes and sea beaches sandy soils, in that case the kinds that thrive are quite limited except as regards the pine family and junipers.

TREES THAT DISLIKE SANDY OR GRAVELLY SOIL? Ans. The white oak family, hickory, walnuts.

TREES THAT DO FAIRLY WELL IN UNDRAINED LAND? Ans. Deciduous—all the swamp white oaks, *Quercus bicolor*, etc., alders, white elm, black ash. Evergreens—some of the magnolias and silver firs.

TREES THAT WON'T THRIVE IN WET SOIL? Ans. Deciduous—Canoe birch, European white birch, black cherry, European larch. Evergreen—spruces, especially the Douglas spruce of Colorado.

TREES THAT WILL THRIVE IN BLACK, WAXY SOIL? Ans. Deciduous—nearly all tap-rooted trees, also lindens and white, green, red, black and blue ash. Evergreens—arbor vitæ, and nearly all pines except white and red pines, together with nearly all other hardy evergreens both broad and narrow leaved.

THE COLORADO BLUE SPRUCE.

This is one of the hardiest, most beautiful and useful of evergreen trees for the garden. We are indebted to Messrs. Ellwanger & Barry of Rochester, N. Y., for the illustration herewith presented. It was engraved from a photograph of a specimen on their lawn near their nursery office, and it shows well the style of the tree when allowed unrestricted freedom.

The Colorado blue spruce, the Colorado Douglas fir and the Colorado white fir (*Abies concolor*) are three very fine trees of great hardiness. The "Colorado" prefix signifies that they are indigenous in the mountains of Colorado, hence exceedingly hardy, and to distinguish them from others of the same species which come from California and are barely hardy with us. At Dosoris both the Colorado and Californian forms of all three are grown, and while the greater hardiness of the Colorado plants is quite marked there is no gainsaying the fact that the Californians are the prettier ones. At the same time we do not recommend them because they are only precariously hardy.

In the mountain forests many of the trees are blue, others grading from that to plain green. The fine blue plants in nurseries and gardens are selected seedlings or grafted plants, and cost a little more than ordinary green colored ones, but their greater beauty and attractiveness render them well worth the extra price. The blue one grows just as easily as the green one, and makes as fine a tree, then isn't it better to pay an extra dollar and get the finest, and forever after have something to be proud of?

And this is a good time to get these evergreen trees and plant them. To the three already named we may add Nordman's silver fir, the blue form of the white spruce (called cœrulea), the blue form of Engleman's spruce, the Japanese hemlock, the blue Mount Atlas cedar, the Swiss stone pine—a small tree, and the Japanese umbrella pine. These are first-class evergreen trees and hardy too.

SHRUBS FOR A NORTHEAST CORNER.

A. N., New York, asks: "Which small shrubs will do well alongside of my house in a corner facing northeasterly?"

If protected from the sweep of the wind in winter a good many will thrive there, but if not it isn't a congenial place. And the selection will depend largely on local circumstances, as light, shade, room, what one likes, etc. If sheltered, a mass of hardy rhododendrons or azaleas interplanted with lilies and carpeted with lily of the valley should do well. Also a clump of Japan quince Simoni, cut in when it gets too large, and bordered out a little with hardy yucca; *Euonymus alatus* bordered with Thunberg's barberry and carpeted with periwinkle or English ivy, but the euonymus must be kept down; or a mass of the Japanese rose rugosa. If exposed, the Japanese quince cut in; purple barberry cut in, with Chinese barberry in front; bayberry (*Myrica*) with large flowered clematis among it; or a mass of Thunberg's hydrangea in a carpet of lily of the valley. But all this is only suggestive; we cannot tell what will fit your case.

PLANTING A FLOWER AND SHRUB BORDER.

In answer to E. H. S., Pa.: 1. By all means plant Hall's honeysuckle on the fence, and a few plants of *Clematis paniculata* and the single prairie rose at one end. 2. If gladioli and geraniums did well in the border last summer roses should thrive in it this year. Dig it deep to unfasten the soil and cut out all encroaching tree and shrub roots. 3. Roses should not be shaded overhead as under the branches of a tree, and they should get the sun several hours a day. 4. We don't like interplanting H. P. roses with phloxes; rather than do that crowd your roses into half the space, giving the other half to the phloxes, you'll get better satisfaction in both cases. And we wouldn't mix up tea roses with pyrethrum or pinks; crowd them up a little and let them fill the bed alone. Using the pyrethrum or pink as a border would do. 5. Yes, you can widen the border, plant shrubs next the fence and perennials in front. But don't use rough shrubs or those that make but little show of bloom. Have the prettiest only. 6. If not shaded overhead lilies should do very well in the north-facing shrubbery and perennial border.

AUSTRIAN PINES FOR WINDBREAK.—J. E. P., Conn., asks how far apart to plant them on a hill top for shelter. The general way is to set out 15-inch high plants, 15 inches apart; next year chop out every second plant leaving those remaining 2½ feet apart; the following year cut out every alternate one, so that those that remain are 5 feet apart; one or two years later chop out every second one of these, so that those to stay permanently are 10 feet apart. Let them grow together. Of course this arrangement may be modified considerably. If 2 foot plants are used to begin with, plant 2½ feet apart. Don't thin out the duplicates till they begin to meet in the row, but don't wait any longer than that. Read what Robert Douglas—that Nestor of arboriculturists, says in GARDENING, March 15, page 195.

ELM LEAF BEETLES.—In answer to A. A. W.: Putting bands painted with tar around the trunks of the trees to catch and destroy the descending larvæ is needless. The mature insects, both male and female, fly. All of the larvæ don't descend to the ground to pupate, they nestle in every crevice in the bark of the trunk and large branches, pupating there perfectly. Those that come to the ground usually lie in a deep collar around the n ck of the tree, where they can very readily be trampled to death or destroyed by being sprinkled over with kerosene.

The Lawn.

THE LAWN.

The largest lawn here contains about three acres, but there is a great deal of grass in other sections of ground and in individual lots, from 300 square yards upward in extent. Light and freedom from drip from trees being essential for a good lawn, we like the places that have the sun all day best.

MAKING A LAWN.—Properly preparing the ground is very important. All our lawn ground has been trenched over at least fifteen inches deep, the old sod and good soil being turned under, and roots and poor earth removed, and good loam in sufficient quantity to make up the grade is substituted. We then add a good dressing of fertilizer, say manure compost two inches deep over all, or 600 or 700 pounds of commercial fertilizer to the acre, turning it in and mixing it well in the ground with digging forks and keeping it two or three inches under the surface. I have no objection to the use of barnyard manure in this way, but on account of the great cost of hauling and composting it we have used commercial fertilizers largely in place of it and with good results. The manure is sure to contain a great deal of seeds of noxious weeds that are certain to grow, and it is a costly job to weed them out each year. On a new piece of ground prepared with a commercial fertilizer and seeded in September, 1893, only a very few weeds showed themselves, and it did not require any weeding during the season of 1894. The result was very satisfactory, and notwithstanding the extreme dry weather the new grass showed the effects of the drouth less than where barnyard compost was used. While I am a strong advocate for commercial fertilizer for our grounds, especially for topdressing, for a stiffer soil, of a clayey nature barnyard manure well worked into a mixture with it may be better, it would loosen it up, make it more friable, and allow tht roots of the young grass to take hold quicker.

LAWN GRASS SEED.—I use 1 bushel of red

COLORADO BLUE SPRUCE

top, 2 bushels of Kentucky blue grass and 2 pounds of white clover, well mixed together, to the acre. I buy each kind of seed separately and mix them myself. But the lawn grass mixtures sold by reputable seedsmen grow very well.

WHEN TO SOW THE SEED.—I prefer September, as then the young grass gets a good hold before the winter sets in. But we also sow in early spring. All small patches are sown by hand, but for large pieces of lawn we sow with Cahoon's broadcast seed sower. After the seed is sown we rake the ground lengthwise, then across, with wooden rakes, and even it with a hand roller. No more is done till the grass is up between one and two inches, when we roll it again, to cause the young grass to stool out better. Don't cut bare the first summer, especially in hot weather.

TOPDRESSING THE LAWN.—We do not use stable or farm yard manure for this purpose for two reasons, first because it is unsightly, secondly, because it certainly introduces the seeds of weeds, and this we wish to avoid. On a smooth lawn that needs enriching we use commercial fertilizer, 600 or 700 pounds to the acre, with exceedingly satisfactory results, using an Acme Fertilizer distributer, which can be readily adjusted to spread any required amount, of course the dressing may also be sown from the hand. [Mr. Barker doesn't mention what brand he uses, but we know he uses both the Bradley and the Bowker lawn dressing.—ED.] I shall topdress our lawns now just as soon as the frost is out of the ground enough to let the workmen walk on the grass without leaving the impress of their feet. The spring rains will wash the nutriment into the soil. After topdressing we roll the lawns to make them smooth for the mowing machine.

UNLEACHED WOOD ASHES.—I use this as a topdressing with good results, especially where moss and chickweed grow among the grass. A good dressing two years in succession will very materially lessen if not eradicate both of these pests and give a good sole of grass. JOHN G. BARKER.

Supt. Forest Hills Cemetery, Boston. March 16, 1895.

FERTILIZER FOR LAWN.—A. N., New York, asks: "What fertilizer would you recommend for a lawn on light sandy soil?" At this time of year unleached wood ashes at the rate of fifty bushels to the acre; nitrate of soda at the rate of 100 lbs. to the acre; or Bowker's or Bradley's lawn dressing as per directions (be sure of this) sent with the fertilizer. Nitrate of soda should be used lightly, and in two or three applications, a month or more between them, rather than all at once. In summer or fall make a pile of good loam and barn or stable manure, say an equal bulk of each, turn it to mix it, then square off the pile to rot and catch the rain. And next November spread it over your lawn one or two inches deep.

TO MAKE A LAWN SMOOTH.—Have it raked clean, then when the ground is quite moist, say immediately after a rain, roll it well. The heavier the roller is the better. A two-horse roller is capital for this purpose, but we mustn't use horses to it when the ground is so wet that they would leave the imprint of their feet in the sod. Use a hand roller on a wet lawn, a horse roller on drier ground.

The Flower Garden.

RAISING HARDY PERENNIALS FROM SEED.

1. When is "all danger of frost past" so that one can sow seed chiefly of hardy perennials? Will not the end of March or first of April be safe in this climate? Do not the plants do much better if they are well started before the hot days of June and even May?

2. Are they not more likely to blossom this year?

3. Cannot the seed perfectly well be sown where the plants are desired to remain? Is there any need of transplanting? The other way saves so much trouble as well as risk. X.

South New Jersey.

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1. Hardy perennials such as golden alyssum, white arabis (*alpina*), coreopsis, larkspur, gaillardia, pyrethrum, heuchera, gaura, evergreen candytuft, asclepias, foxgloves, hollyhocks, phloxes, poppies, and many others should be sown out of doors as early in the spring as the ground is dry and mellow enough to work, and without the least regard to subsequent frosts, if any. The sooner they are sown the better they will germinate, and they will make good roots and get established before summer sets in. But don't sow them in wet ground, nor deep.

2. That depends entirely on what kind of plant it is. Gaillardias, larkspur, some kinds of pinks, some kinds of bell-flowers (*Campanula*), Iceland poppies, pyrethrum and some other perennials bloom the first year from seed almost as readily as if they were annuals. On the other hand there are many that won't bloom the first year no matter how or when sown. These include Oriental poppies, Kæmpfer's irises, heuchera, asclepias, globe flower, day lily, columbine, thrift, golden alyssum and the like.

3. Yes, if you have lots of seed, and will attend to thinning out the seedlings before they begin to over crowd each other. But after the little seedlings come up, and you have got twenty or a hundred little plants in a space only big enough for two, rather than pluck up and throw away the surplus we believe you'll take a trowel and pry them up carefully and transplant them here and there into empty spots in the borders. It is easy to do, and if done carefully and late in the afternoon, and they are given a little water at the time they grow very nicely.

SOWING ANNUALS.

4. As regards when to sow these in the open ground depends on what kind they are. Annuals are divided into two classes, namely hardy, and tender. Hardy annuals include mignonette, Drummond phlox, sweet alyssum, pot marigolds, pansies (almost always treated as annuals), candytuft, larkspur, Indian pink (treated as annual), Drummond's coreopsis, sweet peas, scabios, cornflower, eschscholtzia, gaillardia, and so on, and these can be sown as soon as the frost is out of the ground and it is dry and mellow enough to work, no matter what frosts have yet to come. Tender annuals comprise China asters, ten-week stocks,

balsams, French and African marigolds, nasturtiums, scarlet salvia, single dahlias (treated as annual), zinnias, moonflower, and the like. They should not be sown till danger of frost is past, say between the middle of April and first of May in south New Jersey. All annual plants that are injured by the first frost in the fall should be treated as tender and sown late. Aside from poppies and mignonette annuals either hardy or tender are easily transplanted.

VINES FOR VERANDA AZALEAS.

Z. B., Tower Hill, Ill., asks some questions:

1. A neat vine for west-facing veranda, soil sandy, dry and hot? Would *Ipomœa pandurata* do?

Ans. Nothing will do well there. But if you have that sand dug out to a depth of 2 feet and width of 3 feet and removed and replaced with good soil then you'll get something to grow there. *Akebia quinata* is a free growing neat vine. And if you'd give it a good soaking of water two or three times during summer Hall's honeysuckle would thrive there. *Ipomœa pandurata* is a hardy perennial herbaceous vine dying down to the ground in winter In good ground it behaves well. Unless you replace your sand with good soil don't plant this ipomœa in it.

2. Treatment of *Anemone Japonica* Whirlwind?

Ans. Plant it in the garden in fairly good soil and a sheltered place. Leave it in the ground over winter mulching it with litter or leaves.

3. A hardy azalea and how to treat it?

Ans Order it by color—flame, pink, yellow, etc., rather than by name, for there is confusion in the nomenclature. Plant it in fairly good ground, in a sheltered but not overhead shaded place, mulch with a thick layer of half rotted leaves in summer as a protection against excessive heat and drouth. If your soil is a limestone one azaleas won't thrive in it.

4. How to treat a tender azalea after it has done blooming?

Ans. Pick the old flowers and seed pods off. Water it moderately; never make the soil sodden or let it get very dry. Don't repot unless quite necessary. Keep it from frost is all the warmth it needs, at the same time a little extra warmth and syringing after the flowers are past encourages a good growth of young wood. They need very little if any pruning, and no rest. About the first of May set them out of doors plunged in a bed of coal ashes, in a sheltered place not exposed to warm sunshine and leave them there over summer, but never let them get dust dry, else you'll injure their blooming next winter.

HIBISCUS—ERYTHRINA.

W. C. E., Chicago, asks: "Will *Hibiscus rosa sinensis* and *Erythrina crista galli* bloom well in a warm sheltered situation out doors in summer? If so give summer treatment and how to carry them over winter in frost proof cellar."

The hibiscus is a tender shrub, and grows and blooms beautifully either planted out in a warm sheltered spot in summer or grown in a pot or tub and stood outside or plunged as you would a sweet bay, oleander, or orange. Give it plenty of water when outdoors and hose it occasionally. It may winter fairly well in a cellar, but under protest. For safety's sake it should have been grown and well rooted in a pot or tub, and before putting it into the cellar head it in a little. It must get water all winter as it needs it The erythrina will grow and bloom well out of doors in summer and winter first-rate in a cellar. In fall we cut it in a little, dig it up, and at once put it into the cellar, setting it on a damp floor or in a box of earth. It gets no water. In spring lift it out, shelter it for a few weeks to harden it, then plant it out where you want it to bloom.

DWARF PLANTS FOR NORTH BORDER.

H. A. B., St. Louis, writes: "My house faces the north and the sun never reaches there. A narrow border runs alongside of the house, and I wish to fill it with hardy flowering plants, say something two to three feet high at back and something eighteen inches high in front. What should I plant? I don't want to make the border wide."

This is another case where local conditions must govern the action, our answer is no more than suggestive. To get a prolonged supply of flowers from a so-less border means that a variety of plants must be used, and this means disorder. Next the house Hall's honeysuckle might be tied up to a 3-foot high netting or lattice and kept cut in to that height. A clump of wood ferns interplanted with trilliums, anemones, and hardy cypripediums might occupy the corners in low rockery fashion. Crocuses, snowdrops, narcissi, dwarf lilies (*tenuifolium* for instance) and the like may be scattered among the larger plants. Have Japanese anemones for late summer and autumn, and a bunch of the white day lily. Columbines, fire pinks, cardinal flower, summer phlox (*divaricata*), foxgloves, *Hypericum Moserianum*, and many other hardy plants should find a pleasant home in the border. If you mean shrubs, a row of *Spiræa Bumalda* at back and a border of evergreen candytuft in front, with bulbous plants between them might do. Kalmia, rhododendron, or andromeda, might behave well there; but then, again, they might fail utterly, it depends entirely on the local conditions.

BALSAMS—STOCKS—VINES.

G. C. T., Kamloops, B. C., complains (1) that he cannot get good camellia-flowered balsams, also (2) that the 10-weeks sold as "sulphur" colored and "blue" colored have never borne either sulphur or blue flowers in his garden. And he asks (3) where he can get reliable seed.

4. Will *Manettia bicolor, Clematis coccinea, C. crispa* and *C. Flammula* thrive in a shady situation in good soil, or must they have a sunny position?

1. We have not found any improvement in balsams in twenty years. The first flowers are apt to be more single than the later ones, and those of early than late summer. Try again. And when you succeed in getting a good strain, save your own seed.

2. There are sulphur-yellowish stocks, but the "blue" ones are purple.

3. The great mass of 10-week stock seed is raised in Germany, most of our seedsmen buying their supply there.

4. Manettia raised from green cuttings will bloom a little in a shady place but plants raised from root cuttings, very little. *Clematis coccinea* won't flower much in shade, *crispa* should open a few, but *Flammula* should get out into the light. All of them like sunshine.

VARIEGATED LIVE FOREVER.—V. W., McIntire, Iowa, has sent us a tiny leaf of a sedum (*S. Sieboldii?*) very decidedly marked with a bread band of creamy white, a spot in the centre being bright green; and asks about its value, and how to propagate it. There is a good variegated form of this sedum already common in cultivation, but not so fine as the leaf sent to us. It has not much money-value however. At the same time if the variegation is fixed, and the plant a good grower, and a big stock can be gotten up and disposed of to a live florist to introduce as a "novelty" it would be worth something. But don't try to retail it your-elf. It is propagated by division. At this time of year every chip will root and grow.

"TONGUE LILY."—H. E. L., Conn., got it from a friend in Fiji, and sends us a leaf for identification. "It is tuberous rooted, evergreen; and has leaves like a funkia but larger than those of any funkia I ever saw." By the venation we can see that it is a Liliaceous plant, but cannot identify it by a leaf alone. *Funkia Sieboldii* has pretty big leaves; are those of the "tongue lily" bigger than they?

The Greenhouse.

QUESTIONS ABOUT GREENHOUSE PLANTS.

C. E. S., Chicago, asks: 1. *Amaryllis aulica*—How to make it bloom?

2. *Tropæolum tricolorum*—Treatment after it is through blooming?

3. *Arum sanctum* increased rapidly by offsets but does not bloom. How can I make it flower?

4. *Hydrangea Otaksa*—Treatment after blooming?

1. Let it get root-bound in the pots. In late fall lay the pots on their sides in a cool greenhouse, keeping them dry till they show signs of renewed growth in late winter or spring, then set them on a shelf, but not in sunshine, and give them a little water. Don't hurry them. Let them come along leisurely, they will now begin to grow and a little later should bloom. Don't repot them until after they bloom, and unless they are much pot-bound not then. The more root room they have the fewer flowers they bear. In summer plunge them out of doors under a thin shade, water them as required and house them before frost comes. Get the plants into vigorous well rooted condition and they'll outgrow that disease. If any of the bulbs are loose in the pot, take it up and examine it where the roots emerge from it, probably you may find lots of mites there eating into the root sockets. If so the bulbs should be washed clean.

2. As long as it keeps fresh and green give it water and keep it growing; but when the leaves get yellow give less water and then dry it off, laying the pots out of doors in the shade as you would a calla or freesia. Next September turn it out of its pot, and repot the tubers into fresh soil. Stand the pots upright, still keeping them in the slight shade, and give no water artificially till after the young vines appear. The longer you can delay their starting the better; if till January or February it would be well.

3. Keep it in good growing condition as long as possible; when it shows signs of resting lessen the water and in a little while keep the plant dry. Let it rest a while. Then pick off all the offsets, they exhaust the old root at the expense of the bloom; repot the main tuber into a com

paratively small pot, and the offsets into another pot. We follow the same line in the case of callas in winter and tuberoses in summer. Our aim should be to get big single eyed tubers, rest them well, and grow them well in under rather than over sized pots.

4. Cut off the old flower heads but don't shorten in the branches, else it would start the eyes. Give them lots of water all through the summer and fall, and if practicable a little shade too. Although they stand a good deal of frost without apparent hurt, frost doesn't do the buds any good, so we get the plants under cover before hard frost comes. But even in winter the plants mustn't get dry.

PROPAGATING FROM CUTTINGS.

How shall I root cuttings such as petunias, lantanas, carnations, azaleas and begonias? I have no success whatever. I give them a soil one-third sand and reasonable portion of well rotted manure, some leaf mold, keep them in shade, dampen them when seems to require it. Every one of them seem to rot off at top of soil, no, some rot at below soil, bottom of cutting. Would it be well for me to start them under glass and set them immediately in sun? Z. B.

Tower Hill, Ill.

Raise ordinary petunias from seed and the double ones from cuttings also, lantanas from cuttings of the young wood; greenhouse carnations from cuttings, outdoor ones by division; azaleas from cuttings of the half ripe wood, but don't bother with them, they are too much trouble, tuberous and Vernon begonias from seed, Rex begonias from cuttings of the leaves, and shrubby habited sorts as *odorata, rubra*, etc., from cuttings. In striking cuttings don't use anything except clean, sharp, but not gritty, sand. Don't use either loam or leaf mould, and emphatically no manure, till after the cuttings are rooted. If you don't need many plant the cuttings into pots firmly filled with moist sand, firming the cuttings in well, water them, then set them in the greenhouse or window, where they shall be shaded from sunshine and especially be free from draughts. They may need dewing over head once or twice a day to keep them fresh. A draught will wilt them quick, so will sunshine, so long as a cutting can be kept fresh and plump there is good hope of its rooting, but a wilted one has a poor chance.

PLANTS FOR EASTER.

For church decoration palms are indispensable. *Areca lutescens, Phœnix dactylifera, P. tenuis, P. rupicola, Seaforthia elegans* and *Kentia Belmoreana* are among the best of the feather-leaved ones, and *Livistona Chinensis* of the fan palms for the decoration of churches, halls or large buildings. Some of the florists rent out their palms to hotels by the month, and see to the watering and caring for them.

For festooning English ivy, where it can be had, is most effective trained spirally around the pillars; but Southern smilax (*Smilax laurifolia*) is brought from the South for this purpose by our florists. For delicate grace and beauty of foliage, and for using with flowering plants, there is nothing superior to *Asparagus plumosus*.

By way of contrast to recurving foliage the bold, upright, variegated New Zealand flax is useful. The dwarf tree-fern (*Cibotium regale*) placed on high pedestals is quite effective; so are other tree ferns.

Plants in bloom consist mostly of golden genista, Easter lilies and azaleas, and are used near the altar. American Beauty leads among the roses. Orchids are of course always acceptable, and so too are dwarf orange plants and bougainvillea. WM. FITZWILLIAM.

Orange, N. J.

TO PREVENT FERN FRONDS, CALLA LEAVES AND HELIOTROPE FROM WILTING.

W. H. A., Hyde Park, Mass., writes: "I have the highest opinion of "GARDENING" and your answers to correspondents. I am in a bit of trouble and come to you to help me out. When I pick ferns (maidenhair especially), calla leaves, or heliotrope from my greenhouses, although the ends of the stems are placed in water they will wilt in two hours and dry up completely in twenty-four hours. How can I prevent this?"

Grow them in a moderately cool house, say 50° to 55° at night. In cutting fern fronds never cut any except ripe or black-seeded ones, for immature ones will wilt come or go what may. Just as soon as the fern and calla leaves are cut, bunch them and immerse them bodily in a tank or tub of water, letting them stay there for several hours, or over night, and then take them out, cut the ends of the stems off a little bit more, and place the leaves in vessels of water in a cool cupboard till required for use or shipping. Immediately we gather heliotrope and even before picking it clean and bunching it, we immerse it overhead in water to prevent it from wilting, then bunch it and set the bunches in wide mouthed vessels, so that the stems may set deep in the water, and place in a cool cupboard till required for use. Marguerites are just as as bad.

AMARYLLIS ASPARAGUS.

F. N. B., Indiana, writes: 1. I bought a large dormant bulb of *Amaryllis Belladonna* in December; it has sent up a quantity of thrifty foliage, which has a somewhat spiral way of growing, but no buds. How shall it be made to bloom?

2. What is *Asparagus Broussoneti?*

1. It is practically a hardy species, throwing up its leaves in spring, dying down in summer, and in late summer producing its showy blossoms from leafless plants. You started your plant too soon. Keep it growing now, however, giving it plenty water but keep it somewhat cool. Later on after it dies down plant it out in a warm sheltered spot by the side of your house, and let it stay there permanently, mulching it in winter. After resting a while in summer it will probably bloom all right.

2. *Asparagus Broussoneti* is a hardy, perennial, herbaceous vine that is pretty as a leafy vine, but still prettier when full of red berries among the green. Easily raised from seed.

TREATMENT OF REX BEGONIAS.—In answer to E. P. A., Hammond, Ind.: They love genial warmth, a moist atmosphere, moderate moisture at the root, to be kept somewhat dry overhead, and shaded from bright sunshine in summer. Use moderate sized pots, thoroughly well drained, and a soil consisting of friable loam with a little rotted manure in it, and some leaf soil and sharp sand. In winter give less water than in summer, and a temperature of 55° to 65°, or ordinary greenhouse or sitting-room warmth. They may be set out of doors in summer, either planted out, plunged or stood out in pots, in slightly shaded places, and then should be watered freely, but early enough in the afternoon to let the leaves get dry before night.

CRINUM ORNATUM.—H. L. R., Bondsville, Mass., writes: "My bulb has been wintered under a greenhouse stage, and now the foliage has all died down. Treatment to make it bloom?" If the bulbs are plump and healthy and firm in the soil, set the pot on the stage and give a little water, only enough to keep the bulb plump. About the third week in May plant it out in the garden in an open but sheltered spot in good ground. It should bloom in summer. Next September lift it, pot it into a comparatively small pot, and keep it growing and green till the leaves begin to fade, then dry it off and treat as before. Or, the bulb may be lifted in fall, leaves and roots shortened, and kept dry in a warm cellar.

GLOXINIA LEAVES CURLING IN AT THE EDGE.—In answer to L., Conn. The leaves received. They are clean and beyond curling look healthy. A few yellow thrips were found on underside, but not enough to cause the trouble, which is probably at the root, and beyond control this season. Next year wash the roots clean, scraping out any decaying parts before repotting them, and use fresh, sweet soil without manure. In the meantime get some fresh tobacco stems and spread them thickly on the bench under the plants; the pungent exhalations from them will destroy the thrips. Remove the tobacco next day for neatness' sake.

TREATMENT OF CYCLAMEN IN SUMMER.—In answer to H. A. J., Springfield, Ohio: Take a flat box (like a seed flat) and fill it with sifted coal ashes, into this plunge the cyclamen pots to keep the roots cool, moist and equable, and place it on the bench in a cool part of the greenhouse, shading it from sunshine. Better still, if you have a cold frame, set it facing north or east, put a layer of coal ashes in it, plunging the pots in this. Ventilate it freely, and keep it shaded from bright sunshine. Keep the young plants growing all summer.

Roses.

DINSMORE ROSES WON'T OPEN.

G. C. T., Kamloops, British Columbia, writes: I have a Dinsmore rose which bore a quantity of buds last summer, which only partly opened, and never advanced beyond that stage. They were quite hard and the petals so tightly bound as to prevent their expansion. Cause and remedy?

The failure of the buds to expand properly was probably the result of too cold a climate, the buds being chilled at night. It is a very full petalled flower and like all of its class more susceptible to being chilled than the semi-double sorts. We often notice the same conditions in late blooming hybrid remontants after the cold nights begin in the fall, and it is always much more pronounced in the very double varieties. PAUL PIERSON.

Scarborough, N. Y.

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GARDENING

WILLIAM FALCONER, Editor.

PUBLISHED THE 1ST AND 15TH OF EACH MONTH

— BY —

THE GARDENING COMPANY,

Monon Building, CHICAGO.

Subscription Price, $2.00 a Year—24 Numbers. Advertising rates on application.

Entered at Chicago postoffice as second-class matter.

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All communications relating to subscriptions, advertisements and other business matters should be addressed to The Gardening Company, Monon Building, Chicago, and all matters pertaining to the editorial department of the paper should be addressed to the Editor of GARDENING, Glen Cove, N. Y.

GARDENING is gotten up for its readers and in their interest, and it behooves you, one and all, to make it interesting. If it does not exactly suit your case, please write and tell us what you want. It is our desire to help you.

ASK ANY QUESTIONS you please about plants, flowers, fruits, vegetables or other practical gardening matters. We will take pleasure in answering them.

SEND US NOTES of your experience in gardening in any line; tell us of your successes that others may be enlightened and encouraged, and of your failures, perhaps we can help you.

SEND US PHOTOGRAPHS OR SKETCHES of your flowers, gardens, greenhouses, fruits, vegetables, or horticultural appliances that we may have them engraved for GARDENING.

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THE GARDEN PLAN presented in this issue shows a three-quarter acre corner lot such as thousands of people may have in the suburbs of cities, towns or villages throughout the country. Examine the plan carefully; for there is something to learn from it. It is a common sense plan. The little home grounds seem to be complete, everything is conveniently situated; the most is made of the space, and the grounds are not defaced by unnecessary walks or cut out flower beds. The whole garden has a tasteful refined appearance, and it is as simple as it can be, and in this, to a great extent, lies its strength. Of course a plan like this can be modified to suit the situation and the owner's taste and requirements.

DATURA SANGUINEA.—Of course it is a nice thing, and it would be nicer still if it only bloomed more. Unless it blooms it won't amount to much. No, no, it can never rival *D. arborea*.

THE EFFECT OF THE WINTER IN N. J.—Mr. A. S. Fuller writes us: "Buds are all right thus far (March 23) and if the weather keeps cool a few days more we will have an abundance of flowers and fruits, and escape late spring frosts."

A GOOD GARDENER.—John Dallas of Fairfield, Conn., who is advertising for a situation in this issue is an A1 all round gardener. He is leaving his present place because of the decease of the late owner (Mrs. Sturgis). It is seldom that so good a gardener in every department—greenhouse, flowers, trees, fruits and vegetables, and a man of such excellent moral character, is looking for a situation. We vouch for his practical ability and personal character.

FINE FERN FRONDS.—*Nephrolepis davallioides furcans* is one of the most beautiful of all ferns when used as a pot or vase plant, having broad, furcated, glossy leaves and a massive, full, arching head. And its fronds when cut last well, look well and are much appreciated for table and vase decoration when large fronds are required; for small vases, hand bouquets and the like of course they are far too big. When we cut them we immerse them in a tub or tank of water for two or three hours before using them.

THE EARLIEST BLOOMING SHRUB at Dosoris is the Japanese witch hazel (*Hamamelis Japonica*). It began to bloom the middle of March, and its naked branches are covered with conspicuous fantastic yellow flowers. Planted in the foreground of evergreens they are shown to great advantage. Had the winter been mild instead of continuously severe this witch hazel would have been in bloom in January. It is a native of the mountain forests of northern Japan, where it often forms stout, broadbeaded trees thirty feet high. It seems to be perfectly hardy here, and grows well, and little plants only a foot high will bloom. As an ornamental flowering shrub it is immensely superior to our American species.

THE PLANTING SEASON is now upon us. Ground that is dry enough to plow is dry enough to plant; never plant in wet soapy land, wait till it gets dry and mellow. Plant deciduous trees and shrubs first, evergreens next. Prepare for planting by digging out wide deep holes, removing all the poor subsoil and replacing it with fresh good earth. Firm the soil in the bottom of the hole by tamping it with the feet before planting the tree, and instead of a basin shaped hole for the roots have it just the other way—a hillock in the middle and lower to the outsides. Set the butt of the tree on the top of the hillock, about the same depth as it had been grown before, and spread the roots outward and downward, filling in with fine dryish soil between them. Then fill up the hole full, treading the soil firmly as it is filled in. In light well drained ground a pail full or two of water to each tree at planting time will do good, in heavy soil it isn't necessary. Before planting cut off the broken and torn roots clean with a sharp knife, and in the case of deciduous plants don't spare their tops, but cut back the branches pretty hard, the life of plants will be more certain and their growth stronger for it. Set a stout neat stake to every young tree having a tall weak stem, or that is topheavy.

MONEY IN THE GREENHOUSE.—Many people are imbued with the idea that there is big money in the greenhouse business, and amateurs sometimes plunge into it for profit. The florist business has increased immensely during the last ten years, more flowers than ever before are grown, and more sold. There is an impression that it is a nice, clean, easy business, and a safe and profitable investment. American Beauty roses bring $50 a hundred, Helen Kellar carnations $8 a hundred, and violets $2, and all that we have got to do is to build some greenhouses, s t out the plants, give them some water and keep them warm; then cut the flowers, ship them to the city and get the money for them, and in a little while our pocket book will become as big as our hat. But, alas, the facts are different. They are these: With a fair knowledge of the business, the strictest economy and the closest application to the work, it will take an outlay of $20,000 to realize a profit of $2,000 a year. In fact as business now is we are placing the profits too high. There is considerable difference between gross receipts and net profits. The high prices received for flowers are mostly imaginary. Amateurs who have gone into the business know all about this; those who are contemplating entering should consider well before sinking their money in it.

A BOOK OF TREES WITH COLORED PICTURES.—A subscriber at Oconomowoc is astonished to find that we do not know of a book containing colored illustrations of trees and shrubs. He writes: "I have been buying plants, trees and shrubs out of beautifully illustrated picture books that have been presented for my consideration by the gentlemanly nursery agents that swarm through the country and make life a burden. * * I have bought all kinds of truck from them and given them good cigars and good treat, but the only happiness derived from the operation has been the pleasant anticipation that has existed in my imagination between the time of purchase and arrival of 'the goods.' When I see your beautiful Dosoris illustrations, and read about what Mr. Egan has accomplished I begin to think that I have been buying out of the wrong books." No, you have done what was right. The agent's glib tongue and his vivid book of impossibilities had the same effect upon you that the thrilling circus posters have on the small boy with a quarter in his pocket. If it hadn't been for those pictures you might not have bought anything and never have known the difference between the fictitious and the real article, or between the exorbitant and the fair price. But after having bought your experience you know and appreciate the difference between the impossible and the truth, and you prefer the truth. Now that you have found light let the agents alone, pictures or no pictures; GARDENING will give you the truth about any plants you want to know of, so far as it knows, and the nurserymen who advertise in it will be glad to supply you and deal squarely with you.

NAME OF PLANTS—ASPARAGUS.—In answer to P. J. V., Ste. Marie, Ill.: The leaves are of zonal geraniums. Among the thousands of varieties it is impossible to name them by their leaves alone. For asparagus. Dig the ground very deep, say 18 to 24 inches, to let the roots get down to the moisture in summer. Mark off two rows to the bed, the rows three feet apart, the plants two feet asunder; let the rows be thrown out in the form of trenches for celery and four or five inches

deep in heavy land, six inches in light land. Set the roots in these, heads up, roots spread out, and cover two inches deep with soil. In hoeing and cleaning the ground during summer the trenches will get filled level. Setting so deep doesn't hurt the plants in the least, nor whiten the "grass," and it saves the crown eyes from injury when working and cleaning the ground.

The Vegetable Garden.

GOOD POTATOES FOR AMATEURS TO GROW.

I consider the two best potatoes to grow are the Thorburn for early and the State of Maine for late and main crop. Were I to plant only one variety I would plant the Puritan; this is a trifle later than the Thorburn. These three varieties are first in quality, they also have the merit of productiveness and giving a large share of their tubers nice size and smooth. I have always grown the nicest early potatoes from second crop seed grown in Maryland, by Jno. W. Hall of Marion Station. The true second crops are sure to sprout and grow, are earlier and produce fewer small ones.

SILAS L. ALBERTSON.

Long Island, May 1, 1895.

SECOND CROP POTATOES.—As some of our readers may not know what is meant by "second crop" potatoes we may say: They are full sized but immature potatoes raised from sets planted in July (on Long Island) or in August (farther south). They are not good to eat, but they make excellent sets for the next spring's planting, and they do not sprout prematurely in winter, as ripe tubers are apt to do. Many of our wideawake market gardeners, Abram Van Sicklin, for instance, grow and use second crop sets for their early potatoes. But we do not know who has got them for sale.

SWEET POTATOES.

These are the principal winter root vegetable of the south. In order to grow them well give them as long a growing season as possible. Make up a hotbed for them and get the tubers started and the sprouts ready and hardened off in time to allow of them being planted out in April or at the latest before the end of May. If planted later the tubers may grow large enough, but they will be stringy and immature, and after being dug and stored keep poorly. Aside from earliness, starting them in a hotbed has another advantage, from tubers so started one gets three drawings of sets, while in the ordinary way he gets only one with a few scattering sprouts.

THE BUNCH YELLOW YAM is a new variety. Its stems grow erect in a bunch and do not spread on the ground like those of the old varieties, but otherwise it is identical with the common yellow yam. It is likely to take the lead.

Memphis, Tenn. JAMES STEWART.

WITLOOF is a large-leaved chicory with large long roots suggestive of small parsnips. We sow it in rows in the garden in May or June, thin it and cultivate it as we do carrots in summer, and about the end of October or first of November dig up the roots, and cut off the tops, but not very bare, and store the roots like carrots except that we cover them with moist earth. Then in winter we force them in a warm dark place to get their blanched leaves for salads as a substitute for lettuces. F. J. D. B., Pittsfield, Mass., sends us some samples of his and writes: "I have got it in perfection, it is crisp, tender, and very sweet. I raise it in the winter time. Since the first of January I have been supplying the home market here, and sending some to New York."

EXHIBITION CELERY.—In answer to D. W., Paterson, N. J. The large celeries known as "giant" (except Pascal) are poor in quality and poor keepers. Sow at once for September heads. And from the moment the seedlings appear till you dig the celery for use, keep it on a steady rush of growth. This is done by early and roomy planting, deep rich ground, abundance of manure in the soil from last year, or very thoroughly rotted manure put in now, and an unstinted supply of water, either rain or applied all summer. Blanch by using boards. They give the cleanest leaves. There is nothing in the general idea that earthed-up celery only is good flavored. Sempers gives the following formula for celery per acre:

Nitrate of soda	100 pounds
Sulphate of ammonia	300 "
Dissolved bone meal	300 "
Dissolved bone black	320 "
Muriate of potash	100 "

But any good complete fertilizer will help you.

EARLY CORN THAT IS SWEET.—Frank Ford & Son, Ravenna, Ohio, write to say that Ford's Early Corn is not only sweet and of good quality but equal to the best of the late varieties. Extra Early Vermont, they also say, is not as good as Ford's Early, but it is decidedly superior to any other extreme early variety that they have tried, and just a little earlier than Cory as they have tested it. They have sent us seeds of both for trial and comparison.

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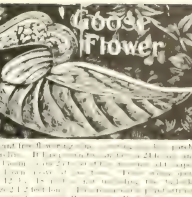

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Start the line with 1½-inch pipe, using that size for one-third the distance, then use 1¼-inch pipe for the next third of the way, and 1-inch pipe for the balance until near the house or point of distribution, all pipe to be of galvanized iron. But if a stable or garden is to have a water supply from this same pipe, use 1½-inch pipe for one-half the distance, and 1¼ inch for the balance of the way to point of distribution. This would overcome the friction and allow for internal corrosion, which is bound to occur.

D. M. MUNGER.

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Publisher's Department.

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New York, March 18, '95.

NEXT issue of GARDENING will be my last one paid for, but the two dollars will soon be on the way for another year's subscription. The absence of "taffy" and "padding" I like, and wish the editors of some other papers were of the same mind.

Bristol, Conn., March 15, '95. H. E. L.

I CONGRATULATE you and Mr. Falconer on the continued excellence of your paper, which, as its numbers accumulate, is becoming a storehouse of useful information for amateurs in gardening.

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Colorado.

I HAVE pleasure in saying that I consider GARDENING the ideal paper for an amateur or gentleman having a summer place in the country, of which there are many such around here. I have recommended GARDENING several times and will continue to do so. Wishing it every success, I remain, yours truly,

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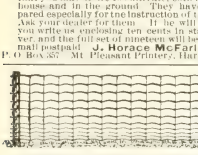

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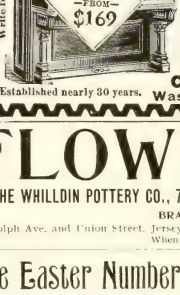

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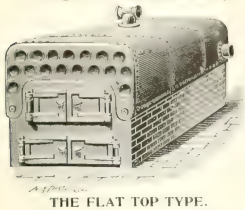

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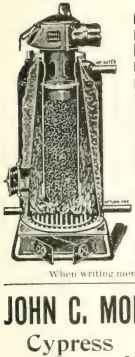

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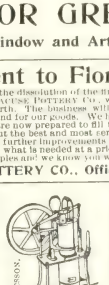

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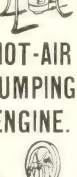

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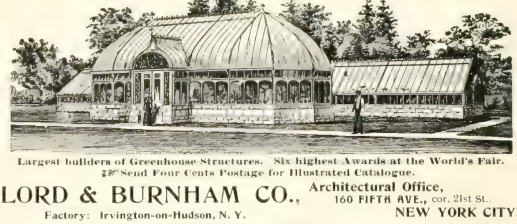

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GARDENING

Vol. III. $2.00 A YEAR. 24 NUMBERS. CHICAGO, APRIL 15, 1895. SINGLE COPY 10 CENTS. No. 63.

WATER LILY POND AT TWIN OAKS WASHINGTON D C

Aquatics.

THE WATER LILY POND AT TWIN OAKS, WASHINGTON, D. C.

This beautiful illustration, engraved from a photograph taken here last summer, shows a part of the water lily ponds. The conspicuous lily in front, with the large leaves turned up at the edges, is a form of the grand *Victoria* of the Amazon, it is neither *Regia* nor *Randii*, however, but rather an intermediate sort. The largest leaf measured 4 feet 6 inches across; the edges are turned up 4 to 5 inches. The flowers are of a creamy color, 12 to 15 in diameter, and very fragrant. The first blossom opened August 1, and continued to open for four days.

The *Victoria Regia* itself is the noblest of all water plants and grows and blooms beautifully with us; in fact it ripened seed here last summer, and I have now several young plants from this seed. It can be grown successfully either in natural or artificial ponds. Were it not for the high price of young plants there is no doubt it would be far more commonly cultivated than it is. But the price should not deter many from trying it. It is by far the most fascinating and interesting plant I have ever grown. The flowers have a delightful vanilla fragrance, and perfume the neighborhood all around it.

THE POND here is 4 feet 6 inches in depth, and was constructed for the double purpose of growing water lilies, and for a private water supply. We

grow both hardy and tender lilies. The hardy ones are planted out in the bed of the pond, deep or shallow according to their size or preference, or planted in boxes immersed in the pond; all the tender kinds are planted in boxes in summer, and in fall the roots are lifted out, potted, and wintered in a tank in the greenhouse

THE BOXES are of plank, 4 feet square by 2 feet deep; we grow the large growing tropical varieties in them, and use half barrels for the smaller growing sorts. These boxes rest 2½ feet under water. Many claim that this is too deep for best results, but I do not find it so. Besides, in dry summer weather we draw from 12 to 18 inches of water for watering the lawns and garden, so we couldn't very well place the boxes at much less depth. And I find that deep water, after it gets warmed up in summer, retains its warmth much better and longer than do shallow waters, and is less liable to fluctuations of temperature. Early in April we let the water off, emptying the pond, to allow us to get the fresh loam and manure into the boxes for the coming season, and look over the hardy lilies. By putting in the manure as early as this we get rid of the green scum, that is sure to come to the surface after adding manure before the lilies make much growth. Then we let the water in gradually.

THE SOIL we use for all of our aquatics is half loam and half cow manure pretty well rotted.

HARDY POND LILIES.

The ones we grow consist of our lovely fragrant wild lily (*Nymphæa odorata*) and its varieties *Caroliniana*, clear rosy pink; *rosea*, the Cape Cod lily, dark pink, and highly fragrant; *exquisita*, deep rosy carmine, and *sulphurea*, a deeper yellow than *chromatella*, quite fragrant, and with leaves beautifully mottled with reddish purple spots. *Nymphæa alba* from Europe is very free flowering but its blossoms are scentless, the variety *candidissima* has larger flowers. *N. Marliacea albida* is a charming free-flowering lily of waxy whiteness; *carnea*, of the same race, rosy pink, and vanilla scented; *rosea*, of deeper color than the last; and *chromatella*, yellow with orange stamens, fragrant, and in bloom from spring till fall, are lilies that thrive well either planted out in the bed of the pond or grown in tubs. *N. Laydekeri rosea* is a little gem. When they open the blossoms are light pink with golden centre, but they deepen with age. *N. pygmæa*, white from China is the smallest of all our lilies. A variety of it, *Helveola*, bears yellow flowers all through the season, has finely marked foliage, and is very satisfactory.

TENDER OR TROPICAL WATER LILIES.

By this I mean those whose roots are not hardy enough to live over winter in our open ponds, but which we can winter easily in a greenhouse, and plant out in the pond in summer. We have several varieties on trial, and some most promising new sorts not yet in commerce, but the following well known kinds because of their satisfactory behavior have given us great pleasure. *Nymphæa dentata*, white, flowers sometimes 15 inches in diameter; *Devoniensis*, rosy red, and very free; *Sturtevantii*, with broad deep rosy red petals; *gigantea*, satiny blue changing to white, fine; *gracilis*, white, blooms carried well above the water; and *Zanzibarensis* and its varieties *rosea* and *azurea*, all beautiful, and easy to grow.

THE LOTUS.

Everyone who can grow hardy aquatics should have the Egyptian lotus (*Nelumbium speciosum*), and the *roseum*. They are bold, free-blooming, showy, and grow and spread with much vigor, and they are quite hardy. In small ponds, or when cultivated in company with other lilies, the lotus roots should be confined in boxes or brick compartments, otherwise it will spread so fast as to soon monopolize the space and choke out the other plants.

COMPANION PLANTS.

The water hyacinth (*Eichhornia crassipes major*) is very satisfactory. I have bloomed it best in partial shade. The water snowflake (*Limnanthemum Indicum*) if planted near the edge of the pond will soon spread over several feet of surface and flower very freely. It is the little plant shown near the house in the illustration. The water poppy (*Limnocharis Humboldtii*) should not be planted in deep water; at the edge of the pond it spreads and blooms extravagantly. Then we must have a clump of the Egyptian paper reed (*Papyrus Antiquorum*) and in suitable places around the pond plant bamboos, tall grasses, castor beans, Abyssinian banana, caladium, etc.

PETER BISSETT.

Gardener to Hon. Gardiner G. Hubbard.

The Flower Garden.

VARIOUS QUESTIONS.

The following questions are by R. M. W., Toronto:

CASTILLEJA INDIVISA.—Its height and breadth and character and duration of bloom? Annual or perennial? Under a protection of leaves will it stand our northern winters?

Ans. A biennial, but blooms first year from seed, hence best treated as annual. Height between one and two feet, width half as much. Flowers yellow and not very conspicuous, bracts scarlet and showy. It lasts in bloom for some weeks. Like all the painted cups it grows beautifully wild, but is hard to cultivate artificially.

CRUCIANELLA STYLOSA.—Will it make a good edging? Is it hardy with good protection? Character and duration of its bloom?

Ans. It is a hardy perennial, of flat spreading or trailing habit, with heads of small but pretty pink flowers, and it blooms for a long period in summer. A nice plant in rockwork, but we do not recommend it as an edging.

TRICYRTIS (Japanese Toad Lily). Should the roots be planted in boxes now, or transplanted to the open ground? Should they be started in a cellar or under glass? Approximate height and breadth of plant and character and duration of bloom?

Ans. The plant is a hardy perennial blooming in September and October. Height one to three feet according to variety and treatment, breadth from one stem to a clump two feet across; flowers purplish and white, much spotted, and crowded near the ends of the shoots. Lasts a long time in bloom. Probably rather late for Ontario.

STREPTOSOLEN JAMESONI. I am training this on a wire trellis in the greenhouse, near the glass, with a full southern aspect. It is blooming very well. How shall I treat it when it has done blooming?

Ans. Cut it in a little and thin out thin switchy or wiry branches. It likes free ventilation, a good deal of root room and rich soil, and a deal of water in warm weather, for it is a great rooter. Hose it too to keep it clean. We stand it out of doors in summer, giving it lots of water.

SWEET PEAS. I have a lot growing on a wire trellis near the glass in the greenhouse; they are about two feet high but not vigorous. Think they will bloom?

Ans. Let them have fresh air every day, sunlight and lots of water when needed, and they will likely yield flowers according to their strength.

NICHOLSON'S DICTIONARY OF GARDENING. Is the edition of 1887 the last one?

Ans. It is. And there is no probability of a new one being made. It comes in four volumes and costs $20. But it is much handier when bound in two books, two volumes in each. Ours is bound in this way, and is very convenient. But it costs a little more.

OUR SUMMER GARDEN.

In our summer garden at Lake George, which we only reach the last of May or first of June, we have a flower bed that gives great pleasure. There happens to be at one end a group of hybrid perennial larkspurs, the rest is filled with several varieties of yellow, orange and white eschscholtzias, single and double, with a full border of sweet alyssum. There is always a pilgrimage to a bed of salpiglossis, from which are gathered hundreds of bloom until late autumn. I have never met any one up there who had seen them grown in quantity before. The piazza boxes give great delight to ourselves and all visitors. There are three—zinc-lined—filling the space from post to post, set in cleats of wood nailed about a foot above the piazza floor. It is always dry under them, and a broom can pass under. The boxes form a substantial railing, and when they are filled the fragrance, bloom and color are at a friendly height to be appreciated by one sitting in chair or hammock. A grape-vine and morning glories are planted at one end of the porch in the ground, the former trained as a frieze across the front, just under the eaves. Scarlet runners bear the strong winds well and are used year after year on four posts. They never fail to attract the ever-welcome humming-birds. Delicious white and buff double gilly-flowers and white petunias are the main dependence for three months or more. All the small spaces are sown with the graceful native corydalis (*C. glauca*). The odor of the stocks begins to be powerful about dusk. I am surprised so little is written about the night-blooming stock (*Mathiola bicornis*). I agree with one of the English writers that there is nothing beside mignonette in the garden more distinctive, delicate and delicious than this stock. When, on arriving north, I find the salpiglossis bed looking hopeless the first week in June—the plants are an inch or less in height and riddled with holes from insects—I take them up, soak them in a can of water over night, or longer, and plant again, and they go right ahead and in a short time are a revelation of beauty and color.

H. S.

New Hampshire ave., Washington, D.C.

FALL SOWN SWEET PEAS.

I see in your issue of March 15, the statement that autumn sown sweet peas should be planted on the level. In this dry climate, where we have almost no rain in winter, and the snows disperse without soaking into the ground, there is no trouble in using the ordinary one foot trench. In the bottom is put four inches of old manure, then upon that two inches of soil. The seed is sown and covered with two to three inches of soil and the trench filled rounding with manure. The January catalogues usually mention some

BED OF CANNAS ON THE GROUNDS OF MR C. L. CROOKE OCONOMOWOC. WIS.

new kinds we want to try, and these are planted about March 10 to 15, at which time the top layer of manure is removed from the peas planted in November. At present writing, March 30, every seed seemingly is peeping through. There is no question in my mind as to the superiority in bloom of these autumn sown peas, and picking begins frequently the last week in May. This plan has succeeded equally well in Connecticut, but I have always covered the rows with tarred paper to exclude rains. Throwing surplus earth on the ridge between the double rows one sheet in width, covers two rows, making a peaked roof.

H. E. GATES M. D.
Colorado Springs, Colo.

For your part of the country your way of treating the autumn sown sweet peas is the best one. We advised against the trench system for fall sowings because of the probability of the trench getting filled with water and ice in winter thereby and injuring the peas. The covering of tar paper is an excellent suggestion, not only in the case of sweet peas, but also for some delicate perennials, and precariously hardy bulbous plants.

A BED OF CANNAS.

Our illustration, engraved from a photograph sent to us, shows a bed of cannas as grown last year by Mr. C. L. Crooke. You will observe what an open place the bed is in, and how well it is filled and nicely the plants are in bloom. And it is a very easy matter for anyone to have a bed like this. Apropos of this bed we submitted the following queries to Mr. Crooke, and he kindly furnishes the replies.

1. Were the plants started or dormant when set out?

Ans. Started in 5-inch pots. They were 18 inches high when set out.

2. How far apart were they planted?

Ans. Sixteen to eighteen inches.

3. When did they begin to bloom?

Ans. About the middle of July.

4. Did they behave well and look well?

Ans. Splendidly, from the start.

5. Did you give them any special treatment in summer?

Ans. Plenty of water every day when the sun is off, and a spraying overhead every second day.

6. Have you any suggestions to make regarding planting a canna bed as gained from past experience?

Ans. My bed was made as follows: One-third fresh horse manure without straw, and one-sixteenth of sand thoroughly mixed with the top soil to the depth of eighteen or twenty inches.

7. How were the plants arranged as regards size and color?

Ans. The three outer rows were of Florence Vaughan, and the entire center of Alphonse Bouvier.

GLADIOLI.

W. J. S., Marquette, Mich., writes: "I am an enthusiast in regard to gladioli, as it is one of the few flowers that seem to do well in this cold climate. I have purchased fine stock, from time to time, but I find they never keep up their excellence after the first year. Is there any way of cultivating them which will stop this tendency to deteriorate?"

Mr. E. S. Miller of Floral Park, N. Y. answers: If you mean that the colors deteriorate (as some ask me why their gladioli all turn red after a few years) it is because for one bulblet that the light colors produced the red sorts produce a dozen or more, hence the reds must prevail. But if the deterioration is in the size of the spikes or bulbs then the fault is in the planting and cultivation. The bulbs should be planted at least three inches below the surface of the ground, in mellow soil, and not nearer than six inches apart each way if in a bed, if in a field in rows two and one-half feet apart, then make each drill a double row three inches apart, alternating the bulbs in the rows. The soil needs to be frequently stirred during summer to attract and retain moisture.

SWEET PEAS.

Referring to the sweet peas of the Rev. Mr. W. T. Hutchins, I must agree with that gentleman's expression of wonder in thinking of the six best colors out of seventy-five. Ah! you have no idea what a superb collection of his favorite flower was shown in our city. Of course I had to see them and undertook to select the handsomest of them for special reference. But individual tastes differ. As seen in the garden row the Senator, a shaded chocolate with stripes of white and purplish, we think it handsome, but as a bunch of cut flowers they lose favor alongside of clear, marked colors. Of the whites in my garden Emily Henderson was the best. You will get into ecstacy over the beauty of Countess of Radnor. Other varieties that gave me pleasure were Butterfly, Boreatton, Cardinal, Stanley, Captain of the Blues, Lady Beaconsfield, Firefly, Lady Penzance, Venus and Dorothy Tennant. W. S.
Hartford, Conn.

CLEMATIS—NEAT VINE.

H. M. H., Hooversville, Pa., asks: 1. "Will any kind of clematis, say *paniculata*, bloom well on a veranda facing the north? If not what will? The ground is good. 2. Also a neat vine that will quickly cover a summer house?"

1. If not shaded overhead, as by neighboring trees, *C. paniculata* will grow and bloom there, so too will *C. viticella*, and some of the large flowering sorts. Neat vines that will also grow well there are *Akebia quinata* and Hall's Japanese honeysuckle. 2. *Actinidia arguta* is neat and fast growing, but without much beauty. The akebia is good and neat. Japanese honeysuckles are indispensable. And both the Chinese and Japanese wistarias make pretty vines for a summer house. We should prefer using two or more together, than one only.

FERTILIZER—HEN MANURE.

The following questions are by "D": 1. In a bed for flowering plants I wish to try a commercial fertilizer. The bed is 40 feet long by 6 feet wide. What kind should I get, and amount use?

Ans. Get Bowker's or Bradley's Complete fertilizer. About 700 pounds per acre is a fair dressing. As an acre contains 43,560 square feet and your bed 240 feet, about 4 pounds would be a good dressing for it. An overdose is injurious.

2. To fertilize potting soil, how much hen manure should one use?

Ans. If mixed dry a pint to the bushel of earth. Much depends upon its strength, that is how it has been saved. Far better have too little than too much. It is something we shouldn't care to use for potted plants except lightly in topdressing or as a liquid manure.

AMARYLLIS BELLADONNA.

F. N. B., asks: "If planted out of doors won't the bulbs have to be buried under ground? You know this isn't the custom with amaryllis generally."

In growing hyacinths in flower beds in the open garden we bury the bulbs three or four inches under ground, but if we cultivate them in pots in the house or conservatory we never bury the bulbs under ground, one-third of the bulb is kept above ground; and in the case of hya-

cinths in water bottles the whole of the bulb is above water. It is much the same with amaryllises, crinums, and some others, in cultivating them in pots we keep the bulbs one-half or one-third above ground, but when planted in the outdoor garden the bulbs are buried three or four inches under ground.

COSMOS—DAHLIAS—CHRYSANTHEMUMS.

X., N J., asks: 1. "Can cosmoss fely be clipped back as is done so successfully in California, where they have hedges of it? Will it not grow stronger as well as much less ungainly plants, and more blooms? And if so, how late can it be done without delaying the blossoming period?

2. "Could single dahlias, which grow so tall, be treated in the same way? And if so, how late?

3. "Where chrysanthemums are raised entirely out of doors, and early blooms are thus specially desired, how late is it safe in the spring or summer to nip off the branches for more bushy growth? Is it safe to do it all with the Delaux sorts, or even October flowering?"

1. Yes, but begin early. Don't let the plants get up tall before you cut them back. Give them plenty of room, and when they are a foot high nip the points out of them, and again and again as the side branches shoot out, but don't pinch them after the middle of August. It makes stockier plants. The quantity of flowers borne depends upon the vigor and number of young shoots on the plants.

2. Don't pinch dahlias so often as you do cosmos. How late? Till they begin to bloom, say middle of July. Plants raised from seed don't grow as tall or lanky the first year as do those from stored roots, and they begin to bloom earlier. Besides the ordinary tall sorts there are some quite dwarf strains, notably the Jules Chretien varieties. They need no pinching.

3. About the first of August. If by "Delaux sorts" you mean what was sent out as a new strain of early blooming varieties a year or two ago, we may say that we raised, grew and flowered many of them, but they were such a disappointment that we threw every one of them away. We now stick to such firmly rooted friends as Red Dragon, Jessica, Ivory and the like, and as they are stocky plants and early blooming we seldom nip them after the first of August.

A TREE MORNING GLORY.

Ipomœa fistulosa (Syn. *I. Goodellii*).

Indigenous in Mexico and other parts of tropical America several species of *Ipomœa* or morning glories grow in the form of trees and shrubs, indeed, one at least (*I. arborescens*) actually becomes a small timber tree 30 feet high. Two or three years ago one of these shrubby morning glories was introduced to cultivation here and disseminated as a seedsman's novelty by Mr. Goodell of Dwight, Mass., under the name of *Ipomœa Goodellii.*

In reply to an inquiry we addressed to Mr. Goodell, he tells us: "It came to me from one of my growers in Texas near Mexican line, several years ago, who stated it was found by somebody in the garden of an old Indian who lived in an obscure or unexplored part of Mexico. I sent specimens of it to the late Prof. Sereno Watson, of the Harvard University Herbarium, who wrote me that it was quite distinct from any *Ipomœa* in the Harvard Herbarium, and suggested the name *I. Goodellii* for it. * * I introduced it in 1893." Under date of January 16, 1895, Mr. J. N. Greenman, of the Harvard Herbarium writes us: "Upon looking up the *Ipomœa* to which you refer, I find that it was described about five years ago by Prof. J. M. Coulter, *Ipomœa Texana*, but it was soon reduced to a well known species from South America, namely *Ipomœa fistulosa*, Mart. The plant is a native of Brazil and is an escape from gardens only in this country."

This settles its identity. Now for the plant as a garden flower: Mr. Goodell sends us seeds of it, and writes that the species is easily raised from seeds and if sown early blooms the first summer both in the open ground and in pots in the greenhouse, he had it in fine bloom in 5-inch pots last summer, but it ripens seeds sparingly. It is a shrub-like perennial (in the tropics it becomes "a high shrub," so say botanical authorities) 4 to 7 feet high according to cultural conditions, and terminating the shoots are clusters or cymose panicles of 25 or more pale rose colored flowers with a dark center, and 3 to 4 inches across. In the north the plants may be cut down in fall and the roots brought indoors and wintered in boxes of earth as we do those of *I. paniculata*. In the south it is hardy if a good mulching of leaves or litter is placed over the roots.

Last fall Mr. W. N. Pike of Florida wrote to us about some plants of it he had in his garden there: "You ought to see the plants of tree morning glory at our place in Florida. In August they were taller than my head, several stems from each root standing unaided, and every morning *full, full* of handsome, pleasantly fragrant purple morning glory flowers. The blossoms somewhat resemble those of *I. paniculata* but are much lighter, the throat is dark. Every bee, butterfly, and bug of high and low degree in the country flock about the flowers, but hardly a seed had set when I returned from there the last of August."

SWEET PEAS.—In answer to Mrs. W., E Oakland, Cal. For the varieties you do not find in the catalogues you name apply to Rev. W. T. Hutchins, Indian Orchard, Mass.

The Lawn.

THE LAWN.

By this time the lawns should be raked off clean so as to clear them from sticks, stones, pieces of wire, and any other trash that would injure the mowing machine when cutting the grass. After a rain run the roller over the lawn to firm and smoothen its surface. If any bad weeds, like bunches of wild onion, dandelions, docks, chicory, broad-leaved plantain, show themselves pry them up with a fork and pull them out and tamp down the place firm with the foot. Rake off old chickweed, crab grass, sorrel, or other spreading weeds, scarify the ground with iron-toothed rakes, sow some good grass seed on it and roll it. Sodding should be attended to. There are many place in which sods should be used in repairs instead of grass seed, for instance, on steep banks, along the margins of flower beds, where the grass had been killed out by over growing plants, by paths and roadsides where the sod had been killed out by walking on or broken into by wagon wheels, also about the house where dogs make holes in and destroy the grass.

It is wrong to delay cutting the grass till it is so long that it cannot be cut with a mowing machine and a scythe must be used. Let it get a good start, but mow it before it gets too long, and don't cut it very bare.

Roses.

ROSES—VIOLETS.

J. P. T., Randolph Co., W. Va. writes: I have had some tea roses (The Bride, C. Mermet, etc.) sent from the nurseryman's considerably before I expected them. They are only five to six inches high, and had evidently been grown in heat, so there was nothing for it but to plant them in a box and keep them indoors, as in these high mountains we are still liable to snow and severe frost. About what time will it be safe to move them out of doors? How to prepare the bed and what aspect is best? Must they have shelter from the fierce summer sun? The soil here is excellent loam, with clay subsoil, and the general formation limestone. Ought these roses to stand the winter out? This year the thermometer has been repeatedly below zero, and the snow almost continuous for three months, but this has been exceptionally bad.

How can I best grow sweet violets, Russians? I can't find them advertised at all. Can they be grown from seed, and where may it be obtained?

ROSES.—By keeping them indoors you did right. Gradually inure them to outside temperature and atmosphere, and plant them out early in May. Good loam with clay subsoil is an excellent soil for roses providing it is well drained, and neither surface nor bottom water can stagnate there. Any warm aspect, but preferably a southeast one will do; but for that class of roses, if not shaded overhead, they will even do well facing north. Have the bed deeply dug, making the soil fine and mellow, but don't use much if any manure in it. After planting the roses and they start into fresh growth mulch the ground about them to keep it cool and moist: this mulching may consist of rank litter or manure, or grass mowings. No, these roses are not hardy with you. Well buried under a winter-long snow, or covered with loam they might survive now and again, but we cannot trust them.

VIOLETS.—In a cold frame in winter. The Czar, a large fine violet, and the single blue and white forms of the European sweet violet are hardy and the latter can be naturalized in our gardens or lawns. Our seedsmen do not, so far as we know, keep seeds of them on hand, but they can get them for you from Europe. Send to the florists for Czar violet plants.

BONEMEAL FOR ROSES.

H. A. J., Springfield, Ohio, asks: What quantity of bone meal should be used as a fertilizer in a bed about four feet in diameter for roses? Is there danger of getting too much?

About one pound well forked in and distributed through the soil, so that the roots of the plants can reach it when growing; avoid bringing the roots into immediate contact with the bone. If careful in this respect and a pure article is used there is not much danger. A round bed of this size will accommodate a larger number of plants than a square bed or

border. The quantity for a square yard of bed for roses would be about one-half pound well forked through the soil before planting, or if planting strong remontant rose plants, and it is desired to fertilize each plant separately with bone, use a handful (about four ounces) to each plant well worked through the soil.

WM. H. SPOONER.

Jamaica Plain, Mass.

SOME NOTES ON NEW AND RECENTLY INTRODUCED ROSES.

MARCHIONESS OF LONDONDERRY (1893). A fine reflexed flower of large size and globular form, color white, with flesh colored tints. It is a strong grower with fine foliage, but from present appearance will not prove a free bloomer; in this respect it is not unlike Margaret Dickson. Both are the production of the celebrated Irish growers. Age may improve the flowering character of the plants, as it has in the Dickson. Excessive propagation is very largely the cause of weak vitality in the newer introduction.

CAPTAIN HAYWARD (1893).—A plant of strong growth, producing stiff upright shoots and fine foliage. It is a free bloomer, color of flowers bright crimson, and they are very sweet scented. Similiar in style to Dupuy Jamain.

MISS HARKNESS (1893).—In growth the plant is rather light, and for this perhaps not very free in bloom; the color is pure blush, delicate and clear, and the flowers are of fine form. Another year may give the desired strength for freedom in bloom, that is very properly demanded in a garden rose.

CRIMSON RAMBLER (1893).—This is a semi-double Polyantha rose of Japanese origin, and comes to us highly recommended. It is claimed to be hardy in England, but I doubt if it proves so in the northern sections of this county. I have it now in bloom under glass. The flower is truly a triumph of beauty, blooming in clusters, almost every shoot showing buds and the color is bright glowing crimson. But the rose is without fragrance. The plant is of very strong growth, which feature will give it great value as a garden rose.

LA FRAICHEUR (1891).—A hybrid tea, an attractive flower, carmine rose colored and cup shaped with long buds. Unfortunately the plant is rather a weak grower, but will perhaps improve with age. It is a grand rose and worthy of careful attention.

GUSTAVE REGIS (1890).—Another Hybrid Tea, accounts of this rose from the other side of the Atlantic were quite complimentary. The color of the flower was described as nankeen yellow, with long pointed buds. But the growth of the plant is so weak that I have been unable to determine as to its true color or character. The flower is semi-double and this feature may give the rose attractions to many.

MRS. PAUL (1891).—A Hybrid Bourbon, a seedling from Mme. Isaac Pereire; like its parent its growth is very strong, either as a pot plant or in the open ground and the foliage is very fine. The flower is variable in color and size; color from blush white to rosy peach. I am not prepared to commend or to condemn the rose without a further trial.

WM. H. SPOONER.

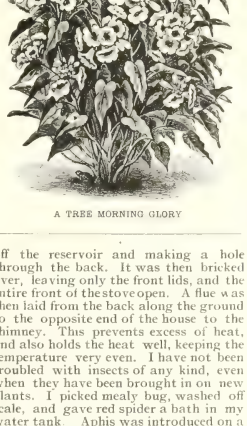
Jamaica Plain, Mass.

WE ARE GLAD TO KNOW IT.—P. J. V., Ste. Marie, Ill., writes: "About eight months ago I asked you about the treatment of some plants, and, following your advice, I had splendid success."

The Greenhouse.

MY LITTLE GREENHOUSE.

I would like to say in comment on "A. B. C.'s" "little greenhouse," that I have one even smaller, sunk three steps, span roof, with longest slope toward the south. As it is only an experiment in a little country village, it is not very stylish, but is built warmly. The sides are double, of cheap lumber, and packed with dry earth. For heating apparatus an old large kitchen stove was sunk half way in the ground at one corner, after breaking



A TREE MORNING GLORY

off the reservoir and making a hole through the back. It was then bricked over, leaving only the front lids, and the entire front of the stove open. A flue was then laid from the back along the ground to the opposite end of the house to the chimney. This prevents excess of heat, and also holds the heat well, keeping the temperature very even. I have not been troubled with insects of any kind, even when they have been brought in on new plants. I picked mealy bug, washed off scale, and gave red spider a bath in my water tank. Aphis was introduced on a plant of saxifrage, and I have killed it whenever seen, but it hangs on persistantly, a few all the time. The worst pest has been worms in the soil. These, with their myriad of small-fly attendants were brought in on a lot of plants from a neighbor's. I am using lime water now, and think they are giving up the battle. I find a small mite running about my seed bed, and I often find it about the drainage holes in pots. It seems to be in the leaf mould. The largest ones are about the size of a pin-head. They are brown and have eight legs. What is it? What caused it? And is it hurtful? If so, how can I rout it?

[Please send us a sample.—ED.]

McIntire, Iowa. V. W.

ORNITHOGALUM ARABICUM.

F. N. B. writes: "Last fall I got three of these bulbs; one is now in bloom and very satisfactory, the other two have not started to grow. Will the good bulb force again?"

After the flower fades keep the leaves fresh, green and growing as long as possible. In May plant the bulb out in the garden. In the summer, sometime, the leaves will die down and go to rest naturally, then lift the bulb and keep it dry till September or October, when if it be plump and of good size pot and force it again. We cannot rely upon them the second year for flowers, but much depends upon the size and strength of the bulbs. Every second year if liberally grown they should bloom well. We cannot tell what ails the dormant bulbs. Plant them out of doors now; if there is any life in them that will start them.

SUMMER TREATMENT OF CHRYSANTHEMUMS IN POTS.

1. When chrysanthemums are plunged out through the summer, how early should they be put out? 2. In what sized pots? 3. Should the pots be changed during the season, and when? 4. How deep should the pots be plunged? 5. Should the plants have any fertilizing (manuring) while outside? A. S.

Wisconsin.

1. When danger of frost is past in your locality. Chrysanthemums will stand considerable freezing when in a semi dormant condition, but a slight frost will injure them when in active growth. 2 and 3. The plants should be repotted into pots about two sizes larger whenever the soil has become nicely filled with roots (not a complete mass), until they have been placed in their final or flowering pots. This will depend upon the purpose for which the plants are intended. If they are wanted for cut blooms or to carry only 3 to 5 blooms, a 6 or 8-inch pot will be large enough, but if you want to get large plants with a number of blooms, say 50 to 100, a 10 or 12-inch pot will be needed.

4. About level with the tops of the pots.

5. After the plants have filled their final pots nicely with roots, weak manure water may be given twice a week. Cow or sheep manure is best; soot water given once in two weeks will also be beneficial, use about a teaspoonful of soot to 1 gallon of water. I. L. POWELL.

New York.

DISEASED PALM LEAVES.

C. E. S., Oak Park, Ill., writes: "I enclose two leaves from seedling palms *Corypha australis* and *Chamærops excelsa*. These are from small seedlings received last autumn from a Southern nursery, and have been kept during the winter in a cool greenhouse. They are putting out new leaves, but nearly all are affected like these from which leaves are sent. Cause and cure?"

We submitted the leaves to Dr. Byron D. Halsted, who reports that they are affected by the palm tip blight. While you cannot cure the diseased leaves you may by spraying the plants with Bordeaux mixture once a fortnight prevent it spreading. Cut off and burn all diseased parts.

PRIMULA—CLEMATIS.

A subscriber asks some questions: 1. *Primula obconica*, when to sow it for winter flowers?

Ans. At once. And grow in a cool greenhouse or thinly shaded cold frame in summer. If properly cared for they will make nice blooming plants by next November. They blossom well in 4-inch or 5-inch pots.

2. Will *Clematis Jackmanni* grow from cuttings, and if so, when should they be taken?

Ans. Yes, from cuttings is the way florists raise them. Take half ripe wood in summer. But it isn't a very easy matter. If you notice, *Jackmanni* and the other large flowering clematis keep up in price, and this is because of their slow propagation. Florists having good convenience for striking the cuttings are often quite successful in rooting them.

SHADING FOR GREENHOUSES.

I have tried various means of shading greenhouses and find white lead and kerosene applied with a brush is best of all. It covers well, rain does not affect it, and it comes off quite easy. [Excellent. Make a thin white wash and apply it with a broad white wash brush, reaching the top of the greenhouse from the ground by using a long pole handle to the brush which can be put in or taken out at pleasure.—ED.] W. H. A.

Hyde Park, Mass.

CHRYSANTHEMUMS are easily raised from seed, and from seed sown now we should get good flowering plants next fall. Sow the seed indoors as you would China asters or French marigolds; when the seedlings come up prick them off singly into other pots or flats, protect them from frost till the end of April; early in May plant them out in good ground, and afterwards treat them as you do your regular stock of chrysanthemums. They will probably bring you all manner of flowers, big and little, ill-fared and good looking, single and double, and you will likely get a great deal of pleasure and instruction out of the experiment.

LEMON VERBENA FROM SEED.—R. C.—Yes, you can raise it from seed, but if you want to get up some plants to cut lots of fragrant sprays from next summer, stick to the cuttings. But for the interest in it and experiment's sake try a few seeds; and when the seedlings come up and start off in life with broad hairy leaves more like sage than lemon verbena, and having nothing resembling their parents but the scent, don't be disappointed, that is simply a trait of their youth, they'll outgrow it in time, in like manner as does *Eucalyptus globulus* outgrow its broad-leaved glaucous babyhood.

SMALL WHITE WORMS in the soil in pots. M. B. L., Princeton, Ill., asks: "What can I use to prevent the small white worm in the earth for potted plants from being so troublesome?" Wm. Fitzwilliam, Orange, N. J., answers: "I have used permanganate of potash for killing worms in pots, and as a fertilizer with good effect, in the proportion of one teaspoonful of the permanganate to two gallons of water. I have used it on ferns, crotons, palms, etc., but would not like to use it on such fine rooted plants as heaths or azaleas."

Orchids.

ORCHIDS.

A complaint is often made that orchids wear out, and dwindle away, and that they are prone to insect pests and other ailments, and some who would like to grow orchids are deterred from trying them. But such a complaint is all nonsense. Were the lovers of orchids to visit an establishment where orchids are grown in the finest health and condition they would soon learn that no plants are more easily grown. The zero weather we have recently had was very trying to many orchids that were kept in dry, hot greenhouses, when they should have been kept in cool ones. Through mistaken kindness we often find them subject to about the same condition as kiln dried lumber, the bulbs are shrivelled and in order to try to plump them up they are watered very often (too often) and the roots are made to decay by the process of watering. Then follows the scale insect and soon a general decay sets in, and the plants are relegated to the waste heap. Now there are many plants, and valuable varieties at that, that will not thrive under such conditions. Such plants embrace *Lælia Arnoldiana*, *L. Gouldiana*, *Odontoglossum citrosmum*, *Sophronites grandiflora*, *Oncidium varicosum*, *O. Marshallianum*, *O. crispum*, *O. Jonesianum*, *Lælia anceps alba*, *L. albida*, etc., *Odontoglossum grande*, *O. Insleayi*, that will do better in a cool house, at 40° to 50° with just enough moisture in the atmosphere to keep the plants from shrivelling. Better let them shrivel with drouth in a cool house and keep the roots from rotting than to swelter them in heat and decay. This of course applies to such plants when at rest. Much of the poor success in orchid culture is occasioned by not taking proper care of them, or rather not allowing them to take care of themselves during their season of rest, indeed it is surprising how much cold many of the orchid family will bear when at rest. W. MATHEWS.

Utica, N. Y.

The Fruit Garden.

THE FRUIT GARDEN.

All hardy trees show well for flowers, and the latenses of the season may save them from spring frosts.

GRAFTING.—Wherever the wood buds have not burst into growth grafting may yet be done, but it is getting late for it.

FINISH PLANTING trees, bushes and vines as soon as possible, so as to give them a start in life before the weather gets hot and dry. Set a stout neat stake to every tree that needs support, and use stout soft string for tying. A piece of old hose between the stake and the tree will save the stem from chafing.

SCALE.—The white scales seen on the bark of trees just now is simply the dead shells of last year's insects, but underneath them are nests of living eggs that hatch out now and become scales this summer. With an old knife or bit of thin hoop iron and a very stiff (the bristles cut short) paint brush rub the white scales off of the bark, then spray the wood all over with strong kerosene emulsion or potash water to kill the eggs or young insects. We like to do this before the young leaves appear, as we are apt to do less mischief to the trees, after growth begins while the insects are more getatable, the trees are more susceptible to injury

PRUNING.—Don't hesitate to do any pruning of apple, pear or plum trees that may have been neglected in winter. And if you find any dead branches on your old peach trees cut them out. After the trees leaf out the dead twigs are easily seen, so the big branches are all we bother with now. But don't prune grape vines as late as this. Wait till after they begin to grow; in pruning them then they don't "bleed" so much as they would do now.

RASPBERRY AND BLACKBERRY bushes that were not buried over winter are apt to be more or less winter-killed. Better wait till the buds begin to swell before heading the canes in, then cut them back to the living wood. And tie them up to their supports.

STRAWBERRIES.—We lift the winter mulching right off in April and pile it aside. This gives us a good chance to clean and cultivate between the plants. About the end of this month or first of May we replace the mulch, keeping it between the rows and well in about the plants, but not over them. We like to do this before the plants come into bloom. Many growers however, don't remove the winter mulch at all, they simply go over the rows now, clearing the straw aside from over the plants to let them come up through it, and they let it stay for a summer mulching. This is an excellent time to set out a new plantation. The plants will grow well and make good runners, but won't fruit this season. Those planted last fall, however, will bear fruit.

GREENHOUSE GRAPES.

We started our greenhouse grape vines March 1. We commenced by shutting up the vineries early in the afternoon and getting them well warmed by sunheat, this was all for the first eight days, except what little fireheat was necessary to keep out frost. The temperature some mornings was as low as 36°. Then, continuing the early shutting and using a little more fireheat we kept the heat at night up to 40°, then to 45° and gradually a little higher till now (April 4) we keepit at 60° at night with a rise of 10° or 20° in the day time. But never forget to shut up early.

Our vines now have all been tied up and disbudded, and only one bunch of grapes retained to each branch, if the shoot has shown more they have been removed. This induces stronger flowers and a better setting of fruit.

When the Hamburgh vines are in flower we maintain a night temperature of 65°, and for Muscats 70° to 75°, allowing it to rise 5° in the day time if by fireheat, or 10° to 20° by sunheat, with a free circulation of air in the day time. Be very careful against cold draughts. See that the borders are kept moist at this time, but do not damp the inside of the houses late in the afternoon. Let them get dry before night.

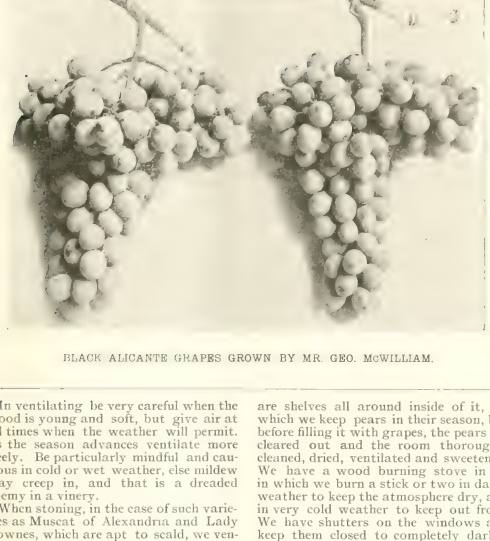
We syringe the vines twice each day from the time we shut them up to start them till they come into flower, then we stop it till the fruit is set, after which we give one more syringing to remove the old blossoms.

When the Muscats are in flower we will go over the clusters with a fine brush to distribute the pollen and in this way assist in fertilizing the blossoms and getting a good setting of fruit. In fact we find it better to take the pollen of some free-setting variety like Hamburgh and fertilize the Muscats with it; this gives them the double chance of setting by their own pollen or foreign pollen.

We shall begin thinning Hamburghs and all free-setting varieties after the bunches are well set, and while the berries are quite small; but in the case of Muscats we allow the berries to swell a little before thinning.

Watering must be properly attended to and liberal. We use diluted liquid manure from the stable when the fruit is swelling, but stop it when the berries begin to ripen.

In summer we will mulch the border with stable manure to help keep it equable in temperature and moisture, and the feeding roots near the surface.



BLACK ALICANTE GRAPES GROWN BY MR. GEO. McWILLIAM.

In ventilating be very careful when the wood is young and soft, but give air at all times when the weather will permit. As the season advances ventilate more freely. Be particularly mindful and cautious in cold or wet weather, else mildew may creep in, and that is a dreaded enemy in a vinery.

When stoning, in the case of such varieties as Muscat of Alexandria and Lady Downes, which are apt to scald, we ventilate the vinery a little at top and side, day and night, with a little fireheat to keep the air moving.

Madresfield Court Muscat, when commencing to color is liable to crack, but I find the same treatment used to prevent scalding prevents cracking also.

When the grapes begin to color we increase the ventilation at top and sides.

Hamburghs started March 1 get ripe about July 20, Muscats take a month longer, and Alicante and Lady Downes won't be ripe till into September. But in order to insure the good keeping qualities of the last two they should ripen not later than the last of September. At that time be sure to keep a free circulation of air in the house, for if moisture is allowed to settle on the fruit it will injure the keeping qualities of the grapes.

The grapes here are all grown for private use. We begin cutting in July, and from that time on till the following May we have a continuous supply of our own grown grapes. What Muscats are left by the middle of November are cut and put into the fruit room, and are used from there as required. Early in December we cut off all of the fruit of Lady Downes, Alicante, and Mrs. Pearson, and store it too in the fruit room. But be very careful of one thing, not to cut the fruit of these late varieties, for keeping through winter, till after the vines have shed their leaves.

Our fruit room is a cool room in a plain cellar, and there is nothing fancy or expensive about it. The sides are of masonry, the floor cemented, and a brick partition separates it from the rest of the cellar where vegetables and stores are kept. It is dry and rat proof, sweet and clean; the odor from the vegetables is excluded, and we make it frost proof. There are shelves all around inside of it, on which we keep pears in their season, but before filling it with grapes, the pears are cleared out and the room thoroughly cleaned, dried, ventilated and sweetened. We have a wood burning stove in it, in which we burn a stick or two in damp weather to keep the atmosphere dry, and in very cold weather to keep out frost. We have shutters on the windows and keep them closed to completely darken the room and maintain an even low temperature. We keep it at 36° to 40°. I should like to keep it at 36° all the time, and I wouldn't like to have it any lower than 34°. The grapes are kept in the usual way, which as you know is in bottles of water. In cutting them we cut a little bit of the branch with the cluster and set the end of the branch into the bottle till it reaches down into the water; the bottles are arranged along the edges of the shelves and tilted so that their necks lean over the shelves and the clusters hang down without touching anything. The last of our Muscat of Alexandria grapes went to table February 23, and Alicante March 15, we have Lady Downes yet. It was into May last year before the last named were all used.

Lady Downes is not only the best keeping black grape we have got, but the best keeping one of any color, and Mrs. Pearson, a fine late grape, the best keeping white one.

We prune our grape vines in December. It is best to prune early; it gives the wounds time to heal before we start the vines in March. If the vines are strong I prune to one eye, if weak to two. Then we wash the vines with whale oil soap and water, using a stiff brush in preference to a cloth, as it cleans the rough bark better.

The vine borders here are all inside of the vineries, so we have complete control over them, a very essential point in the case of early forced grapes. And all that the vines get to eat goes through our hands. Every winter we clean off the loose soil on the surface of the border and replace it with fresh loam with a good dressing of fine bone mixed through it. [Our illustration of Alicante grapes is engraved from a photograph of two bunches grown by Mr. McWilliam.—Ed.]

George McWilliam.

Whitinsville, Mass. April 4, '95.

A DOZEN OF THE BEST PEARS.

This is one of the finest pear growing sections of the country, and an immense variety of pears is in cultivation about Rochester. The following sorts are the best tested and most approved we have, and they all are particularly well adapted for amateur's gardens.

FOR SUMMER.

Margaret (Petite).—A medium-sized pear, pale yellow with red cheek. The flesh is melting, juicy, vinous, and of the finest quality.

Bartlett.—The most popular and best known of all pears, fruit is large, yellow, melting, and of rich flavor.

FOR AUTUMN.

Seckel.—The sweetest pear in existence. Fruit of medium size; tree very productive. Thin the fruit if you want extra fine pears.

Bosc.—A large, golden russet, distinct appearing fruit of delicious quality. To insure success it should be double worked.

Angouleme (Duchess).—Fruit very large, juicy, vinous. Next to Bartlett in popularity.

Howell.—Fruit large, yellow and handsome; flesh melting and good. The tree is very productive.

Louise Bonne de Jersey.—A very prolific variety. Fruit large, handsome yellow with deep red cheek, flesh melting, buttery and good. [At Dosoris it bears heavily, but in the case of both dwarf and standards the bark is astringent.—Ed.]

Sheldon. This is my favorite pear. The fruit is large, round, russety all over, and the flesh is of the highest quality.

FOR WINTER.

Anjou (Beurre d').—One of our very best pears for home use or market, large and handsome. Flesh melting, vinous and sprightly.

Clairgeau (Beurre).—A very large, attractive pyriform red and yellow fruit of excellent quality.

Lawrence.—A very popular variety. Fruit medium sized, obovate, golden yellow, melting, pleasant, and aromatic.

Josephine de Malines is our best late winter pear. Fruit medium sized, melting, perfumed, and agreeable flavor, of the highest quality. Thin the fruit if you want fine specimens. John Charlton.

Rochester, N. Y.

RASPBERRIES AND BLACKBERRIES.

J. H. B., Chicago, writes: "I have on my lot a space about 175 feet long and 4 feet wide running along the west side of a tight board fence, and partially shaded by house and oak trees. I think it would do for a row of blackberry and raspberry bushes. What varieties should I plant, and when is the best time to plant them?"

Plant at once. The Kittatinny blackberry, Doolittle black cap, and Cuthbert (red), and Carolina (yellow) raspberries are long tried reliable sorts that we stand by for main crop. But observe, a blackberry is black several days before it is fit to eat. Before planting that border have it dug fifteen or eighteen inches deep, and cut out every vestige of a tree root you find in it. While both blackberry and raspberry bushes like a little shade they do not like to have the ground they are growing in dried up and impoverished by the roots of neighboring trees.

Please mention Gardening when writing to advertisers.

GARDENING

WILLIAM FALCONER, Editor.

PUBLISHED THE 1ST AND 15TH OF EACH MONTH

— BY —

THE GARDENING COMPANY,

Monon Building, CHICAGO.

Subscription Price, $2.00 a Year—24 Numbers. Advertising rates on application.

Entered at Chicago postoffice as second-class matter.

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All communications relating to subscriptions, advertisements and other business matters should be addressed to The Gardening Company, Monon Building, Chicago, and all matters pertaining to the editorial department of the paper should be addressed to the Editor of GARDENING, Glen Cove, N. Y.

GARDENING is gotten up for its readers and in their interest, and it behooves you, one and all, to make it interesting. If it does not exactly suit your case, please write and tell us what you want. It is our desire to help you.

ASK ANY QUESTIONS you please about plants, flowers, fruits, vegetables or other practical gardening matters. We will take pleasure in answering them.

SEND US NOTES of your experience in gardening in any line; tell us of your successes that others may be enlightened and encouraged, and of your failures, perhaps we can help you.

SEND US PHOTOGRAPHS OR SKETCHES of your flowers, gardens, greenhouses, fruits, vegetables, or horticultural appliances that we may have them engraved for GARDENING.

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MRS. FAIRMAN ROGERS CANNA is a yellow banded variety of the Queen Charlotte type, it was a seedling raised at Newport, R. I., by James Cowles. A gentleman writing to us from Boston the other day says he regards the Rogers as being finer than Queen Charlotte. A few years ago, when this Newport canna was raised, shown and exhibited, we heard a good deal about it, but where is it now? It isn't listed so far as we know, and we hear nothing of it. Queen Charlotte came to us but little over a year ago, and notwithstanding its expensiveness it was, widely tried last summer, and we saw it at several places. This way of lighting a candle and setting it under a bushel is rather poor business.

A PRETTY LITTLE EVERLASTING.—Its name is *Xeranthemum annuum superbissimum flore pleno rubrum!* It is an annual, a seed novelty, easily grown and in its way a desirable little flower.

ANOTHER PRETTY LITTLE FLOWER with an outrageously cumbersome name is *Lychnis Flos-cuculi plenissima semperflorens.* It is a neat hardy perennial, with double fringe-like pale rose colored flowers, and continues in bloom more or less all summer. In spite of its name it is a beautiful little plant.

WHAT IS A SEED PAN? is a question some may ask. It is a wide—from 6 to 12 inches generally—shallow, earthenware dish like a flower pot, and much used in greenhouses to raise seedlings in. They are round or square in form, 2 to 3 inches deep as a rule, and a little narrower at the bottom than at the top, and to admit of ready drainage the bottom is freely perforated.

STOCK FOR ROCKY MT. CHERRY.—A correspondent asks "What is the species and what stock should I use to graft or bud it on?" It is *Prunus Besseyi*, and closely related to our common sand cherry, *Prunus pumila*. If you want to increase the species raise it from seed, if to propagate the finer varieties work them on to stocks of *P. pumila*, or better still, on to seedlings of itself. Try the Jewell Nursery Co., Lake City, Minn., the Phœnix Nursery Co., Bloomington, Ill, or some other western nursery for seed or seedlings.

HOME-MADE MUSHROOM SPAWN,—Mr. S. Edward Paschall used to grow mushrooms and make spawn at Doylestown, Pa. A couple of years ago he removed from there to West Chester in the same state, where he bought and still edits the village weekly newspaper (*Village Record*) having given up his gardening operations. But his love for gardening is unquenchable, and he hope to re-enter the field of horticulture, giving special attention to selecting and perpetuating varieties of mushrooms. At the same time he will still hold on to his newspaper.

MONEY IN THE GREENHOUSE.—Our note under this heading, page 216, put a different construction upon the profits in flowers from what many entertained. Apropos of it one of the busiest and most progressive florists about New York writes us: "I have invested somewhere between $50,000 and $60,000 in the florist business, and have a very large greenhouse plant, and as fine a trade in my line—cut flowers and plants—as any one in the business, and sometimes sell as much as $2,000 worth in a single week, yet I am put to my wit's end to make $2,500 a year."

A NEW DOUBLE FLOWERED SUNFLOWER.—One of the novelties that we shall be treated to in the near future is a new double flowered sunflower, or rather rudbeckia. The flowers are bright yellow, full-double without being stiff at all, and different in that line from anything we now have. Whence it came no one knows. It was something "somebody sent in but who sent it or where it came from we haven't the least recollection. It had been lying around and happened to get planted out there with a lot of other things." That's its history as given to us by the florist who has got the plant. We saw it in bloom last summer and were particularly well pleased with it. It is a hardy perennial.

FLATS OR SEED BOXES.—What is a flat? some may ask. It is a shallow box such as florists and gardeners use to sow seeds in, prick off seedlings into, or transplant rooted cuttings into. Flats may be made of any size, say 12x18 inches, by 3 or 4 inches deep. Pine is the best wood to make them of. But we can not afford to buy new boards to make flats of, instead we go to the grocery stores and buy a lot of "empties," that is of old soap boxes or other boxes goods had come in, getting the tops with them. These empties cost only a few cents each. We take an ordinary soap box and saw it lengthwise into three equal parts, according to its depth, getting two complete flats—the top part and the bottom part—and all of a third one except the bottom from the middle cut. For bottoms for these bottomless middles we use up a few extra boxes, or maybe some old pieces of thin boards we may have lying about the place. The bottoms of such boxes are apt to be tight, so with an auger we bore a lot of holes in them. We prefer, however, to have the slats of the bottoms a little apart from each other, the drainage is better. Don't paint the insides of these flats; instead wash them with thin cement.

IS KALMIA LATIFOLIA HARDY AT CHICAGO?

J. A. H., Winnetka, Ill., asks "Is the mountain laurel hardy in the west shore of Lake Michigan, i. e., in the neighborhood of Chicago?"

Mr. W. C. Egan answers: "My experience with this beautiful shrub is that it is precariously hardy at Highland Park, Ills., but not happy, and will not thrive under the ordinary conditions allotted to the commoner shrubs. In a sheltered position, in peaty soil, well rooted nursery specimens will live several years, but cannot be depended upon to bloom. I wrap the bush in winter in matting. They have wintered well this year."

MAGNOLIA OR JASMINUM HARDY IN KANSAS.

Magnolia grandiflora and *Jasminum Sambac* are tender both in Missouri and Kansas. I find b th of them to do well in a good cellar without heat, and where frost does not enter too severely. The following are perfectly hardy in St. Louis and will undoubtedly prove so in the eastern parts of Kansas:

Magnolia acuminata.
M. acuminata cordata.
M. Fraseri.
M. glauca.
M. macrophylla.
M tripetala.
M. conspicua.
M. obovata and the varieties *Soulangeana, speciosa, Lenné*, etc. J. GUENEY.
Missouri Botanical Garden, St. Louis.

ABOUT GRAVEL WALKS.

Walks and drives should hardly ever be made on a small place except for purposes of strict utility, these are of course to keep away from the lawn traffic that would injure it or be inconvenient to vehicles or pedestrians. Even in the name of utility, lines of travel are often laid down which are quite superfluous. In most cases the roads and paths detract from more than they help the picturesqueness of a garden, and they ought to be treated rather as necessary evils than things to be desired for their own sake. A stretch of turf is more æsthetic than an equal area of macadam, and a lawn unbroken save by its own undulations is better than the same divided into two by a sudden band of gravel, however graceful may be its curves. H. A. CAPARN.

The Vegetable Garden.

THE VEGETABLE GARDEN.

The backwardness of the season is quite marked; even weeds haven't started to grow yet. But the frost, except in shady places, is out of the ground, and we can do a good deal of work.

WET WEATHER.—A rain storm set in yesterday (April 8), and the ground is now pretty wet. Don't touch it when it is in this condition; let it dry enough to be mellow; a day or two's dry weather at this time of year will do this. While moist weather is good for planting in summer, it isn't so in early spring, when the ground is cold as well as wet.

ASPARAGUS.—We generally begin cutting between the 20th and 28th of this month, but appearances indicate a late season this year. And we cut every spear, big and little, that grows up till the last week in June. Sow seed in a row 2 to 3 inches deep for young plants; it doesn't need steeping or scalding before sowing. If you want to make a new bed get it planted as soon as possible before the shoots begin to grow. If there are any old stems left in the beds pull them out—they part very easily now—before cutting begins; it makes cutting easier.

GLOBE ARTICHOKES.—We uncovered them last week, and the crowns look good. In a week or so, when they start growing, we shall lift and divide some of the bigger clumps and replant the divisions. Four feet apart is none too close for them.

JERUSALEM ARTICHOKES.—We leave some undug over winter to insure their keeping well; these were dug last week. We will plant a fresh patch next week, using fair sized tubers as sets, and making the rows two and one half feet apart.

BROAD BEANS should be planted at once. They like good ground. Set the beans on edge, eye down, as you would Limas; it saves them from rotting.

SNAP BEANS —In warm, sandy land we will sow these between the 15th and 20th of this month, and follow by another sowing a week later. There may be danger of late frost though.

HENDERSON'S DWARF LIMA we sow at the same time in the same ground, but we cannot trust the other Limas, for two to four weeks or more yet.

BRUSSELS SPROUTS.—We are picking them yet; kept them in a cold pit, and have had green sprouts all winter long. Think of that, you who have to eat flavorless white heart cabbage. Make a sowing of Half Dwarf out of doors this month.

BEETS.—Sow a row or two at once in good ground, and after they come up thin them to two or three inches apart to make them bulb quick. If you started some in a hotbed or greenhouse, after hardening them off properly, transplant them into rows fifteen inches apart and three to four inches asunder in the row. Don't sow many at a time, they get spongy so soon.

CABBAGE AND CAULIFLOWER.—Plants in 3-inch and 4 inch pots in cold frames are all ready for setting out, and we hope to begin planting next week. We sowed a row of Wakefield and Succession out of doors last week for planting out in May. Plant out after the 15th.

CARROTS.—Those we sowed in a hotbed some weeks ago are up well and thinned; they will give us nice soup carrots next month. Sow a row of Early Horn, and one or two of Stump-rooted out of doors at once in good ground. Don't sow a main crop this month.

CELERY.—Sow seed for main crop in a cold frame or in a bed out of doors where the ground can be kept moist and shaded till the seed germinates. It is slow to come up. Although many people sow for main crop early in April we don't till towards the end of the month, because we believe in rushing celery from the moment the seeds sprout till we store the heads in fall. Celery is only a second crop vegetable, and sowing it early and then starving and spindling the little plants, keeping them waiting for empty ground to plant them in, is poor practice. We have excellent old celery yet.

CHIVES are coming up nicely. To increase them lift some of the bunches and divide them into as many pieces as we wish, replanting these. It makes a nice edging for a short border in the vegetable garden.

SWEET CORN.—We sow early sweet corn and snap beans about the same time. If the first sowing gets frost bitten it is only the loss of the seed; we sow again right between the old hills. Be sure you try Ford's Early; it is said to be the sweetest extra early. Between the 20th and the end of the month we shall put in large sowings of both early and medium varieties.

CUCUMBERS in frames should be shaded from sunshine, ventilated in fine weather, covered up warm at night, kept moderately moist, and sprinkled overhead every fine afternoon. Start a few in pots, old strawberry boxes or on pieces of sod turned earth side up, in the frame, for planting out after the middle of May.

DANDELIONS.—We are cutting and using them now. They were sown in rows in a bed last April, and some weeks ago a frame and sashes were set over them, and straw laid over the frame to darken it. Now we are cutting tender, yellowish green greens that haven't the pronounced bitter taste of the open air crop to come in about the 20th. After cutting the roots are worthless to us, so we dig them up and throw them away. Sow at once for next spring's greens. Draw five rows fifteen inches apart lengthwise in a bed and sow; this will allow of covering it next spring with a frame of boards and six-foot sashes.

EGG PLANTS AND PEPPERS are growing along in pots in hotbeds. Keep them warm and give them plenty root room and head room. Don't think of planting them out before the middle of May, if then.

ENDIVE is more of a fall than summer vegetable, so let it alone till July.

GARLIC is in demand for flavoring certain dishes, but half a pint of bulbs planted now will go a very long way.

HORSERADISH.—Plant at once. Use long clean roots for sets, planting with a deep piercing dibber in rows two feet apart, and in good moist ground.

SIBERIAN KALE has wintered well, but is late. It is a nice greens in spring, many people preferring it to spinach.

LEEKS.—Sow a little, and later on transplant the seedlings into a row in good ground.

LETTUCES are fine in hotbeds now; ventilate them freely, but keep them warm at night, and give them lots of water to make them crisp and tender. Plant out young lettuces out of doors any time now, and from this on sow a pinch of seed once a fortnight for succession crops.

MELONS —We don't sow them out of doors before May, but we sow a lot in pots, boxes or on sods in frames to get them well started ready to plant out about the time we sow our main crop.

MINT.—Although too soon for peas it isn't any too early for spring lamb, so we must have a piece of early mint for flavoring by growing it in a frame or greenhouse. From now on we can get it from out of doors though.

MUSHROOMS.—From now on we must look for maggots. No use making any more new beds indoors. The new mushroom grows well in summer in frames, greenhouses or cellars, and rushes up so quick that it is fit for use before the maggots have time for development, otherwise it is as badly infested with maggots as is the old sort.

OKRA.—Don't sow it out of doors till May, about when you sow your Limas; but you may start some seeds in the greenhouse or frame for early plants.

ONIONS.—As soon as the ground is mellow enough to work draw the drills fifteen inches apart and sow the onion seed. And as soon as the Prizetakers raised in the hotbeds or greenhouse are hardened off enough plant them out in rows with a dibber. If sets are not planted get them into the ground as soon as possible. Also shallots and potato onions.

PARSLEY.—Sow a row of it as an edging in the vegetable garden. If any of the old plants are alive (the roots have wintered very well with us under a mulching) let them stay and grow to furnish leaves till the young plants are ready. But don't bother with them longer, for they are sure to run to flower.

PARSNIPS do very well if sown as early as this, but we prefer waiting till May. Sow them in rows two feet apart The same with salsify and scorzonera.

PEAS.—We sowed round peas and Alpha a week ago, but they aren't up yet. As soon as they peep above ground we shall sow the same sorts again, also Advancer, Premium Gem and others. We can sow any kind of pea from this on without danger of it rotting.

POTATOES —Were it not for this wet storm we would be planting potatoes today; now we must wait till the ground dries a little. The "seed," however, is cut and spread out in a room, and starting. Late potatoes are in time enough for two or three weeks yet.

RADISHES in frames should be ready for use. Sow a little at a time once a week in the garden, most anywhere between other crops.

RHUBARB lifted for forcing and in frames, and inside barrels in the field with hot manure around it is in good using order; and outdoor plants are beginning to make leaves. Sow seed for an increase of stock. Or lift and divide some of the old plants and reset them.

SPINACH.—Fall sowings where the wind had full sweep over them have made very little growth; where sheltered from wind it looks nice and green; and where covered by frames and sashes even without any other covering, it is now quite rank. Sow in rows in good ground out of doors from now on. As it grows so fast and is used so soon we seldom plant it as an independent crop, but as a catch-crop between rows of peas, artichokes, horseradish, etc.

TOMATOES should be raised in boxes or pots in the house or in a bed in a frame for planting out next month. See that they have room enough to make good roots and their bodies stocky. Give them lots of water, ventilate them freely in favorable weather, and don't expose them to unnecessary cold. Let them be well hardened off before planting out.

TURNIPS.—Sow a row or two out of doors every two or three weeks to keep up a supply of fresh roots, for they soon get wormy and spongy at this time of the year.

SELF-BLANCHING AND OTHER CELERY.—R. H., Seattle, Wash., disapproves of the general cultivation of self-blanching celery of any kind because of its inferior flavor compared with that of Sandringham, Dwarf White and other nutty sorts. The self-blanching kinds because of the little trouble needed in growing them have been largely cultivated during the past ten years, but Mr. H. insists that people who used to buy a half dozen heads of the nutty flavored kinds to put on the table to eat now content themselves with a couple of heads of the self-blanched sorts more as a table decoration than as an article of food.

THE VAUGHAN POTATO.—We spent a few weeks last August on a farm at Kittlehill, Arkville, in the Catskills, and had Vaughan potatoes every day at dinner. They were grown on the farm and dug each day as required for use. Boiled and served whole or mashed they were, without any exception, the best eating potatoes I have tasted in many a year—they were so dry and mealy. New potatoes generally don't mash well, they are too pasty, but these Vaughans were dry from the first. J. G. F.

Miscellaneous.

STARTING IN THE SEED BUSINESS.

An Ohio subscriber writes: "I am about starting in the seed business, growing certain kinds of farm, vegetable and flower seeds as specialties, and shall issue a small, unassuming but tasty catalogue, and sell direct to the consumers. I wish to make specialties of asters, poppies, morning glories, nasturtiums, coreopsis, Drummond phlox, sweet peas and cosmos; the last two I will have grown in California by specialists. While I have had considerable experience as an amateur in growing these seeds I have had none in marketing them, and come to you for advice."

Be careful. Don't build any castles in the air. The road to success is long, weary, rough and rocky. There are three ways of dealing with flower seeds; first, growing on contract for seedsmen; secondly, growing a few specialties in wholesale quantity and selling to the seedsmen; and thirdly, dealing as you propose directly with the consumers. This last is the only one we shall now consider:

Handle popular seeds only. Make up your mind now about how much of a list you intend to catalogue. As you yourself can not grow all the varieties necessary even in a very modest list, note those you can grow, and make arrangements with some other A1 seed firm to supply you with the balance, it to be the freshest and finest seed obtainable. Don't have sweet peas, cosmos or anything else grown in California or elsewhere specially for you to begin with; you can buy the same thing from other houses just as good as you could have it grown for yourself, and, probably, for less money. Get up a nice catalogue, using good (but not fancy) paper and have it nicely printed. In describing the flowers tell the candid truth about them, and exclude everything that you can not say well of. Illustrations speak louder than words, but original engravings mean great expense; if you have to use "stock" cuts choose truthful ones only. There are several printers who make a specialty of horticultural catalogues, keeping "cuts" in stock; as a rule they do such work

[CONCLUDED ON PAGE 236.]

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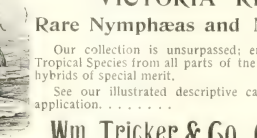
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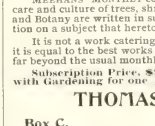

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I AM always so pleased to get GARDENING for it helps me a great deal. H. A. J.
Springfield, Ohio.

GARDENING is a great help to me, and I would not be without it.
Morris, Ill., March 13, '95. T. N.

HOW ADMIRABLE and valuable a publication you have made of GARDENING.
J. W. BARSTOW, M. D.
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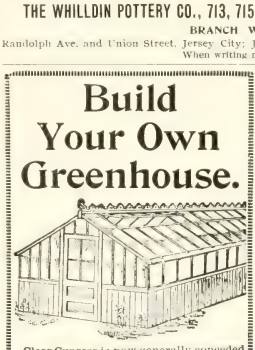

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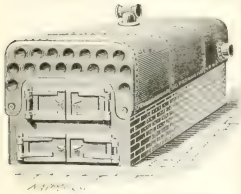

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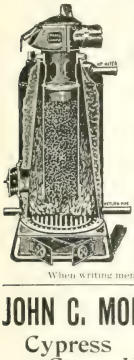

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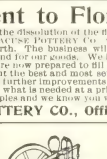

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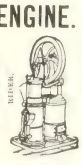

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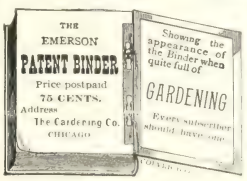

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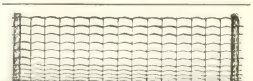

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This is only one of the many good things that are described in "*Choice Selections in Seeds and Plants,*" which is just issued from press. The book is artistic. It is very complete, and will be found of particular interest to all lovers of choice flowers. It is a comprehensive guide to the purchase of the choicest selections and the most valuable novelties in seeds and plants. Sent free to all who mention GARDENING. *Address*

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We have been the first to offer this splendid novelty to the retail trade of the country. The Pink Branching Aster will be one of the novelties in many catalogues *next year.* Why wait!

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GARDENING

Vol. III. $2.00 A YEAR. 24 NUMBERS. CHICAGO, MAY 1, 1895. SINGLE COPY 10 CENTS. No. 64.

BED OF SUCCULENTS IN FAIRMOUNT PARK, PHILADELPHIA

The Flower Garden.

BEDS OF SUCCULENTS AT HORTICULTURAL HALL, FAIRMOUNT PARK, PHILA.

The beds of succulents which the engraving represents are one of the many attractions of Fairmount Park in the summer months. They are situated on the southeastern side of Horticultural Hall, with the Jewish Statue in the background, and ornamental grasses, vigorous perennials, shrubs and trees as a background to the whole. The statue is a fine work of art. The inscription on it tells its history. It is as follows: "Religious Liberty. Dedicated to the People of the United States by the order B'nai B'rith and Israelites of America. In Commemoration of the Centennial Anniversary of Independence."

Of the flower beds themselves the various white and silver looking groups are mainly echeverias and sedums. They are propagated through the winter, potted off towards spring, ready for planting without checking when warm weather sets in. Many of the darker looking plants in the beds are echeverias of dark metallic foliage, of which there are several kinds. A little alternanthera is used, also a pretty bluish succulent (*Klinia repens*). The tall cacti are *Cereus Peruvianus*, the clump-like ones echinocactus, and the white columnar ones, the old man cactus (*Cereus senilis*). The flat stemmed, shrubby kinds are opuntias. The cacti are kept in a warm dry greenhouse in the winter season, with but little or no water.

In the background will be recognized the white plumes of the pampas grass, the tall arundo, a mixture of various eulalias and many flowering plants. The tall young trees are mainly blood-leaved beech, though the one on the left of the statue is the Kentucky coffee. The edging of the shrubbery bed is of the hardy silvery santolina, the leaves of which are of a grayish silver color. Bearing clipping well and being hardy it is a popular plant for edgings to permanent beds.

The Kentucky coffee tree as seen in winter with its sparse branches conveys the idea that it would lack foliage in the summer. This, however, is not the case. The leaves are compound and large, making ample shade without being dense.

Philadelphia. JOS. MEEHAN.

TREATMENT OF OLD HYACINTH BULBS.

K. R. W., Wellston, Ohio, asks: What is the best way to treat hyacinth bulbs when done blooming? I have quantities of hyacinths every spring, but whatever method of treatment I use, lose a great many bulbs during the summer. I like to grow them in conspicuous places, but do

not like to leave the same beds unsightly until the hyacinth bulbs have ripened. Can one have fine displays of hyacinths every year, *only* by buying some new bulbs every fall?

When the blossoms fade lift the bulbs, keeping to them what earth will stick, and heel them close together into a long narrow trench in a partly shaded place and moistish ground, letting them stay there till the leaves turn yellow. Then lift them, trim off the leaves, and keep the bulbs in a cool, dark, airy place over summer. Examine them two or three times during summer to see that they are free from wet and rot. In fall, whenever your ground is ready, plant them out again. All of the sound, solid bulbs should bear flowers the next spring, but there will probably be several worthless ones among them. Now while these hyacinth bulbs may give a nice lot of blossoms in a side border they are not good nor even enough for a front bed. Grown in rich land in a warm sheltered place, and allowed to complete their growth and ripen their bulbs, they will wax strong and give good blossoms. We should therefore advise you to get new hyacinths for your front beds for garden display, and the old bulbs in a side border—even in the vegetable garden, if need be—and in after years select the best of these old bulbs for your front beds, adding enough newly purchased ones to make up the complement.

THE FLOWER GARDEN.

Have everything as neat and trim now as possible. Mow the lawn, edge the flower beds and borders, and have the pathways smooth, hard, clean and inviting. The mixed borders should be full of plants, and everyone looking fresh and vigorous. Have no old plant stems or rubbish of any kind about the garden, and don't let a weed exist in your presence.

THE SPRING is a gay period in the garden. Aside from the display of hyacinths, tulips, narcissi and pansies we can have a fine show of other beauties, for example, moss pink (*Phlox subulata*), bloodroot, white rock cress, blue hepaticas, dog's tooth violet, wild anemones, corydalis of sorts, trilliums, European fragrant and American scentless violets, rue anemones, spring beauty, spring orobus, spring adonis and many others. We should so arrange our gardens as to have an unbroken display of hardy flowers all summer.

THE FLOWER BORDERS generally contain a miscellaneous assortment of plants, mostly hardy. These borders should now be forked over, unfastening the soil deeply where there are no plants, but only lightly where the plants are close together. Sometimes we find clumps of white funkia, pink Japanese sedum, coreopsis, phloxes, etc. raised considerably above the surrounding level. Dig them up and replant them, keeping them as low in the ground as the level of the border. Be careful, however, about asclepias, platycodon, fraxinella and some others that have not yet appeared above ground, not to dig them up. Monarda, lobelia and the like are apt to be heaved by the frost and need replanting. Pearl achillea, perennial sunflowers, *Lysimachia clethroides* are apt to spread out beyond desirable limits and should be cut in. Seedlings of heliopsis, spiderwort and other half-weed plants we cultivate are sure to be scattered about and coming up among the plants in the borders; a little energy in rooting them them out now may save much labor later on. But besides a crop of weeds we are apt to have a host of seedlings of foxgloves, perennial larkspur, hollyhocks and others come up around where the old plants grew last year, and probably these little plants are as good in variety as were their parents; save all you want of them, either planting them in a reserve bed or directly in proper places in the border. And whatever other empty spaces there may be should be filled up with perennials or with annuals. The annuals may be sown there, or if raised in beds elsewhere transplanted where needed. A border filled with hardy perennials is a very interesting spot, because there is always something in bloom in it, at the same time unless given a good deal of attention to keep it well filled up, to prevent some of the stronger plants smothering the lesser ones, and to cut down and remove the stems of "spent" plants, it is apt to have a neglected and untidy appearance.

ANNUALS must furnish a large share of the summer flowers, both for cutting and garden decoration, so we should grow lots of them. Go particularly heavy on those that are easy to grow and are showy and useful for cutting, for instance stocks, China asters, salvia, zinnia, nasturtium, coreopsis, mignonette, Drummond phlox, small sunflower, scarlet salvia and candytuft. A second or succession crop of all of these, except stocks, should be made now, for blossoms after midsummer. They may be sown in rows, or hills where they are to bloom, or in a separate bed or frame, and thence transplanted to the garden. Annuals sown out of doors some weeks ago are now up, and we are thinning them just as we do our beets or carrots. It is a great mistake to let them grow up so thick as to spindle or weaken them; give them lots of room and they will make big roots and big stocky bodies, and give fine flowers. We sow again a month from now for late summer and fall flowers. As soon as danger from frost is over set out such seedlings as salvias, balsams, French marigolds, zinnias and others that are tender.

VINES.—Have lots of these. Moonflowers, cobæa, lophospermum, maurandya and nasturtiums we can raise from seeds easier than from anyway else. The variegated Japanese hop has come up in myriads around where the plants were grown last year, so we have weeded them out to a few. A free use of vines gives a place a well furnished homey appearance, and many homes in open bleak situations may be divested of their uninviting nakedness by a liberal use of vines around the house and in the garden.

PERENNIAL VINES as *Ipomœa pandurata*, everlasting pea, clematis of sorts and cimaanon vine are very useful in the garden. See that they have supports from the first. Tender vines as *Ipomœa paniculata* and madeira vine help us out in summer considerably; we can plant out their tubers most any time now, if the weather is mild and danger of frost past. *Ipomœa Leari*, passion flowers, *Aristolochia elegans* and others that are well started before being set out should not be planted till the middle of the month, if then.

BULBS.—Hyacinths and tulips are now in their heyday. If they are in front beds, as soon as they are over lift them and heel them in in rows and pretty close together in a sheltered and slightly shaded spot to ripen, and when their leaves fade lift the bulbs, spread them out to dry as one would onions, divest them of their leaves and store them over summer in a cool, dark, airy room, spreading them out thinly. Hyacinths as a rule do fairly well if left in the ground over summer, and so too do the different species of tulips, but the garden sorts should be lifted and dried in summer. Leave all kinds of narcissus in the ground. The polyanthus narcissus are not hardy here and shouldn't be planted outside; in the south, however, they do well. Of course grape hyacinths, one-flowered milla (*M. uniflora*), erythroniums and others of their class are better left in the ground. We find that crocuses grown in the grass are not to be compared for long life and vigor with those in cultivated ground in the garden. The same with snowdrops. It is time now to plant gladiolus bulbs. Have them at least 3 to 4 inches under the surface of the ground. Keep back enough bulbs to make one or two later plantings between now and the 10th of July, for later blooming, oxalis, *Hyacithus candicans*, montbretias and the like may also be planted now, but delay a little with caladium, tuberose, tropical crinums, arums, etc.

BEDDING PLANTS are such as geraniums, coleus, alternanthera, iresine, heliotrope, abutilon, stevia and the like. Now, don't be in a hurry planting them out, you gain nothing by it. First try to get good plants. If your plants are small, by keeping them snug and warm in frames or greenhouses, giving them good light and plenty of room, try to get them into good stock. Then by ventilating the greenhouses more freely, and reducing the artificial heat, and gradually exposing the plants more and more to the weather till they are left fully exposed day and night get them so well hardened off that they won't suffer any harm when planted out. Exposing these tender plants to cold drizzling weather and a night temperature of 35° to 40° is wrong; in the event of such unfavorable weather cover up the plants at night. Don't plant them out till danger of frost is past. And in the case of coleus and alternanthera the end of May is soon enough. In hotbeds at this time of year alternanthera will grow like a weed, and cuttings put in now will root in two or three days and make nice plants in a fortnight. They love the heat.

ARRANGEMENT OF PLANTS IN BEDS.

N., Morris, Ill., has the following plants and asks us about arranging them: "Geraniums, double petunias, marguerite carnations, tall and dwarf nasturtiums, coleus, verbenas, balsams, double white feverfew, pearl achillea, poppies, white pinks, pansies, mignonette, portulacca, dwarf sweet alyssum, a few clumps of pæonies, some lilies and cockscombs, and expects to have some cannas."

We can advise you only in a general way. First separate your plants into groups: The geraniums, coleus and cannas last in good looks all summer and should be planted now with a view to continuous effect. The petunias may last through the summer, the carnations should do so, also the nasturtiums, verbenas, so they should have a place free from encroachment by other plants. The feverfew has a flush of flowers in early summer, then a halt, and a scattering second crop later on; the white pinks are soon over, but as the plants are low-growing and evergreen keep them near the edge of the borders. Pearl achillea spreads immensely at the root and should not be grown beside small plants of other kinds, that it might grow into or over and choke. Pæonies and lilies have per-

THE JAPAN WEEPING ROSE-FLOWERED CHERRY

manent quarters; while they need room in early summer, verbenas, mignonette or or other low growing plants may run up pretty close to them in late summer. Pansies are at their finest now, and being of annual duration and low-growing they can occupy the ground most anywhere before the greater plants grow up to cover it. Perennial poppies are over by midsummer and may be succeeded by annuals of many kinds; annual poppies are transient plants, after midsummer their place is vacant and may be occupied with other annuals or summer plants. Sweet alyssum may be grown as an edging to beds or borders. Portulacca is a bright little annual to scatter around where the ground is warm and dry and other things won't grow well, but it isn't good enough to fill prominent flower beds with.

SINGLE HOLLYHOCKS.

These are of the class of neglected but valuable plants which are now and then recalled to memory by somebody who protests against their being kept in obscurity. Hardly any plant of their class is more striking and picturesque. Except for cutting purposes, like most other single flowers, they are better than the double forms in every respect—more artistic, vigorous, free from the hollyhock disease, and when once established needing little or no attention. Yet no florist seems to catalogue them, and nobody seems to remember or notice them except now and then to admire their beauty in some old-fashioned garden which modern improvements have spared. One day some shrewd florist will rediscover and advertise them, and there will be the excitement and satisfaction of another gardening novelty.

[Double hollyhocks are short-lived, usually biennial to triennial, therefore useless for permanent planting. Single hollyhocks, being longer lived and thriftier, are better fitted for landscape effects. In the flower garden or border or for cut flowers, though, the double hollyhocks hold popular favor.—ED.]

H. A. CAPARN.

TRACTABILITY OF CANNAS.

As a reserve plant of immediate effect few can outclass the canna. If removed with care, even in a blooming state it shows no resentment. I start my cannas in a hotbed of moderate warmth, first dividing the clumps and then packing the divisions as closely together as bricks are laid in a pavement. When the main hotbed is vacant and the canna beds proper are filled, the surplus is transplanted to other portions of the spent hotbed, where they remain until wanted elsewhere. Oh how they do like to send their roots down through the thin layer of soil and ramble in among the manure in the hotbed. They require frequent watering in this situation. When needed elsewhere, a thorough soaking of the soil is given, and then with a sharp spade deep cuts are made on three sides without any lateral pressure, the fourth cut being slightly oblique, with a pressure down on the handle, when the plant is lifted with soil adhering. This can be done any time in summer and they can be used to replace late blooming tulips, Canterbury bells, or fill gaps in the border occasioned by accident or disease. I use chiefly Madame Crozy for this purpose.

W. C. EGAN.

DAFFODILS.—How lovely they are now. The little trumpet minor, the greater trumpet major, Horsfieldii, Emperor and Empress are all fine, and although the three named last are by far the finest and a little more expensive, they also have the advantage of being very hardy, very easy to grow and sure to bloom. Get them by all means.

THE DOUBLE FLOWERED DAFFODIL called Von Sion, so much grown and appreciated by florists for forcing in winter, is charming when so grown, but when planted out of doors it isn't at all so satisfactory; its flowers then are green or greenish yellow. It may be good enough for forcing, but the single flowered ones are the best for the garden.

Trees and Shrubs.

JAPAN WEEPING ROSE FLOWERED CHERRY.

Our illustration is a truthful likeness of one of the most striking and beautiful of decorative trees. We are indebted to the courtesy of Messrs. Ellwanger & Barry of Rochester, N. Y., for the use of this picture. In GARDENING just a year ago, we had a picture of a 17 feet high by 20 feet through, specimen at Dosoris in bloom. It will be at its best this year May 1, for it is now (April 25) beginning to open its blossoms.

Our illustration shows the habit of the plant very correctly, the branches spread outward and droop to the ground, but it is not a flat headed tree like a Kilmarnock willow, it assumes more of the character of a weeping beech. Its blossoms are rose-colored, single, an inch or thereabout across, and borne before the foliage comes and in the greatest profusion. In fact the golden forsythias, snowy Yulan magnolia, and rose Japan cherry are a very marked trio in our gardens at this season. It is quite hardy with us, easy to grow, and sure to bloom, even small plants never fail to make a display. It bears some fruit with us, but it is worthless. This tree is one of the good things we unhesitatingly recommend to amateurs.

TREES AND SHRUBS FOR THE SEASIDE.

J. D. S., Stamford, Conn., writes. Please name for me one-half dozen or so varieties of trees and a dozen or so of shrubs that will do well on a seashore that possibly at times is swept by salt spray.

TREES.—Yellow locust, white oak, red oak, tupelo or sour gum, red maple and bald cypress. In fact we find that oaks generally, and beech, red cedar, American wild plum (*Prunus Americana*), seedling apple trees, and mulberry trees too do well by the seaside, where their roots often come in contact with the salt water. At Dosoris we have found that Norway maples, sycamore maples, ginkgo, lindens, larch, cercidiphyllum and several other common garden trees are rather impatient of salt water at their roots, especially between April and midsummer. In fall or winter there is not near so much danger of injury to our trees by inundating tides as when the rootlets are young and tender. And the same is true as regards shrubs. There is a bed here filled with different kinds of hardy hydrangeas and in the center is growing probably the largest specimen of the American form of the Venetian sumach (*Cotinus Americanus*) in cultivation; a few years ago an extra high tide in spring covered this bed, killing (or so injuring them that they were worthless) every hydrangea, but the cotinus was not injured in the least.

SHRUBS.—Beach plum, groundsel tree, button bush, bayberry, sea buckthorn, Carolina wild rose, matrimony vine, tamarix, pinnate-leaved sumachs, as the smooth and staghorn sorts, but not the fragrant sumach (*Rhus aromatica*), common barberry, periploca, Japanese celas

trus (*articulatus*). The common elder, the swamp rose mallow (not a shrub, but grows up like one) and some others also do fairly well. At least these plants here have their roots covered by overflow tides two or three times a year without injury. But weigelias, spiræas and some others have been killed here when grown in beds that get overflown once or oftener a year by overflow tides. A salt water soaking for one or two tides does not kill a susceptible plant at once, the injury is apparent gradually.

TREES AND SHRUBS.

Last summer ('94) was unusually warm and dry, the past winter ('94-'95) was long and cold, and this month of April (it is the 25th now) has been cold at night and exceptionally dry. Young trees and shrubs of precarious hardiness have suffered greatly by the winter and vegetation is late. Deciduous trees and shrubs are leafless still, and although the injury done to *Styrax Japonica*, *Hovenia dulcis*, corylopsis and several others is visible enough to the trained eye, the full extent of the mischief done by last winter can not be seen before the plants are in full growth. Evergreens also have suffered. *Abies magnifica*, hemlocks from the northwest, Dovestone, upright and English yews, *Cephalotaxus*, and retinosporas of the *filifera* type, and rhododendrons have suffered very visibly. *Berberis stenophylla*, if not killed outright, has been cut down to its roots; the "hardy" orange isn't hardy at all, it is killed down to the mulching, the same with *Indigofera Dosua*, and both in very sheltered places. There isn't a spear of any kind of bamboo alive above the ground, but the roots of all seem healthy enough. Heaths of all sorts have been injured a good deal. Rhododendrons have suffered more than in many years; even *Azalea amœna* that has been uninjured for over a dozen years has its outer and upper branchlets killed; the inner part, however, seems to be all right. Wherever evergreens, even hardy kinds, have been exposed to cold sweeping winds in winter they have been sadly damaged. We have some marked instances of the advantage of shelter to evergreens. Some species when exposed have been much marred by the frosty winds, whereas others of the same species, only a few feet away, but sheltered by other bushes, are unhurt.

In Flower.—*Magnolia conspicua* is in full bloom. Every year when it is in bloom we have a rain storm, but so far not a drop this time, although we are suffering for the want of it. Hall's star magnolia and Thurber's (*Kobus*) magnolia are also in bloom. Fragrant bush honeysuckle perfumes the atmosphere. Forsythias are beginning to open. Daphnes are in good bloom. Leatherwood, spice bush and Cornelian cherry are and have been quite gay in their quiet way, and both *Corylopsis spicata* and *pauciflora* are full of golden drops. The last named, however, was injured a good deal last winter. The red maples, at their best, have a glowing and telling effect in the landscape. Some of the earliest peach trees in front of the buildings have a few open flowers, but not a blossom has expanded in the orchard yet. A few prunuses have a few open flowers, but not one of them is in full floral glory yet. The pink and white Mume of Japan are among the prettiest.

Go ahead planting.—Because it is the first of May is no reason why the planting season should stop; on the contrary, keep it up till the trees begin to grow and burst their wood buds. And after you have finished with the deciduous you can keep on planting evergreens for another fortnight.

DAPHNE ODORA HARDY AT WASHINGTON.

We have some plants of the Chinese sweet daphne that have been planted out in the open garden for the past four years, where they are exposed to the full sweep of the northwest winds, and in no way protected except by a mulching of forest tree leaves over their roots, and they seem to be perfectly hardy. They are now (April 15) in full bloom, and I send you some sprays of the blossoms to show you what a beautiful hardy shrub (for here anyway) it is. I mentioned the fact of its being hardy to Mr. John Saul the other day, and he was surprised to hear it. We grow both the green leaved and the variegated leaved ones, and the one seems to be as hardy as the other. True, some of the leaves have been scorched considerably this past winter, but the plants seem to be all right and are full of flowers. [The deliciously fragrant flowers came safely to hand, and we were glad to see them, and know of the behavior of the plant at Washington. Still we don't think it would be hardy at Dosoris. It isn't the intense cold of a night or two that kills half hardy plants so much as continuous cold weather. Our readers will find a splendid illustration of this daphne as grown in a tub and treated as a window plant in Gardening, page 211, March 15, '95.—Ed.] P. B.

Twin Oaks, Washington.

HARDY TREES AND SHRUBS IN BLOOM.

The spring here has been unusually cold and late, and the early blooming trees and shrubs are much behind their usual time of flowering. The silver maple came into flower about the 11th of this month, over a month later than it was last year. The red maple is now coming into flower and is quite conspicuous. The common hoary alder (*Alnus incana*) came into bloom about April 12. The Japanese witch hazel was in flower on the 26th of March. It does well here, and seems to be perfectly hardy. The flowers are prettier than those of the American species.

Erica carnea, a dwarf heath with pale red flowers, is a gem. It came into bloom on the 9th inst., and will be quite showy for four or five weeks It is the only heath that does well here. *E. vagans* does fairly well, but *E. vulgaris* does not thrive at all with us; it gets burned out in summer.

The hazels have all been in flower for a week. The mezereum, one of the prettiest of spring flowering shrubs, came into flower three days ago. *Daphne blagayana* is just now opening its blooms. It is a pretty little thing, but makes slow progress. It has been in the open ground now for three winters, under a covering of leaves.

The leather wood (*Dirca*) has been showing its small yellow flowers for three or four days. Those of the spice bush are beginning to open, and the buffalo berry is in full flower. The buffalo berry (*Shepherdia Canadensis*), now in bloom, grows plentifully hereabout on the banks of the Genesee River. In July and August, when it is covered with its bright yellow berries, it is quite showy. The sweet gale is now in flower; although it grows wild in wet or swampy ground, it flourishes remarkably well here in cultivation, on a dry stony knoll

The naked flowered jessamine (*J. nudiflorum*), a somewhat tender species from China, has come into bloom; we had it covered with barrels filled with leaves during the winter, and even under this protection the flower buds at the ends of the branches are all killed. J. Dunbar.

Rochester, N. Y., April 24.

Roses.

ROSES.

This a capital rose country, and we have them in bloom every day in the summer from the middle of May till sharp frost comes in fall. Roses love deeply worked, well drained, good loamy soil. In the case of roses in beds don't let them stay many years in the same bed; we get better growth and blossoms when we transplant our stock to fresh soil every few years. But we cannot do this with climbing roses or bush-like roses as rugosa, that are planted for permanent effect, and happily, they are constituted so strongly they don't seem to mind the fixed position.

Good Hardy Roses.—In southern New Jersey, around Philadelphia and in this section of the country generally the following hardy hybrid perpetual roses, or as they are now often termed, hybrid remontant ones, give excellent satisfaction:

Alfred Colomb—cherry red, large, sweet.

Anna de Diesbach—carmine, large, full fragrant.

Baron de Bonstettin—very dark red, large, full, fragrant.

Baroness Rothschild—satiny pink, beautiful.

Boule de Niege—Pure white, medium size.

Captain Christy—deep flesh color, large, full flower, and vigorous grower.

Duke of Edinburgh—scarlet crimson, large.

Fisher Holmes—velvety crimson, fine.

General Jacqueminot—scarlet crimson.

Gloire de Margottin—brilliant scarlet, large, full, vigorous.

Madame Gabriel Luizet—satiny rose, large and full.

Magna Charta—pink suffused carmine, large, vigorous.

Mrs. John Laing—soft delicate pink. One of the finest of all roses.

Paul Neyron—deep rose. The largest of all roses.

Prince Camille de Rohan—velvety crimson maroon.

Queen of Queens—pink. Blossoms all summer.

Ulrich Brunner—Cerise red, large, full.

White Baroness—pure white; a fine rose.

Climbing Roses.—Here in southern New Jersey we can grow a few fine climbing roses, the splendid Reine Marie Henriette (in mammoth clusters of large rich cherry crimson roses) for instance. But really, even here we haven't a great variety of perfectly hardy true climbing roses. How different this is in the sunny south, where Devoniensis, Cloth of Gold, Marechal Niel, Gloire de Dijon, and hosts of others are their common every day stock!

Baltimore Belle, blush; Gem of the Prairies, rose; Prairie Queen, deep rose; Tennessee Belle, blush; and Seven Sisters, light rose, changing to white are among the most reliable climbers we have. True we have got "climbing" forms of some of the hybrid perpetual roses, and in sheltered places in good deep loamy soil, tied up to stakes they grow and bloom beautifully, but they are not rampant enough with us for use as "climbers."

Tea Roses.—For planting out in the garden in summer some of the tea

NEW ROSE BELLE SIEBRECHT

scented roses are very appropriate, in fact many people plant a fresh bed of them every spring as they do a new bed of geraniums or heliotrope, setting out young plants. They grow and bloom all summer. If you care to save them over winter bend them down flat on the ground, keeping them there with wooden pegs or a yard or two of chicken wire netting, and over that lay sods close together grass side down, and two sods deep. This will keep them in good shape. Should the winter be very severe some leaves, litter or coal ashes heaped over the sods will make all safer. If you haven't got sods common loam will do. Wouldn't leaves or litter, which are the sovereign winter mulching material, be better than common earth? No, not at all, and there is no means of convincing you of the truth of this as to give it a trial. But if you want to fill the rose bed with spring blooming bulbous plants you will have to lift the roses and plant them in pots or boxes and winter them in a cold frame, pit or cellar. You can plant them out again next year. The following varieties do well with us:

Countess Riza du Parc—Bright coppery rose shaded crimson, fine.

Mme. Joseph Schwartz—Light salmon rose changing to creamy.

Papa Gontier—carmine crimson, fine, free-blooming.

Safrano—saffron yellow, beautiful in the bud; an old and deserving favorite.

The Bride—A lovely white rose, good in the flower garden or greenhouse.

The Queen—white, large, double, very fragrant.

EVERBLOOMING BEDDING ROSES are something many want to know about. In the south where the teas and Noisettes and Bourbons are all hardy, some roses are in bloom most all the time. In the north we should protect the roses in winter by laying them down and covering them with earth, or a heavy mulch of sedge or litter, or it may be lift them and plant them in pots or boxes of moist earth and keep them over winter in a cellar or pit, but at rest. An excellent half dozen for prolonged blooming in summer are Clothilde Soupert, white, shaded with rose in the center; Etoile de Lyon, sulphur yellow; Hermosa, pink; Marie Guillot, white tinted with lemon; Meteor, crimson, and Souvenir de la Malmaison, flesh color.

SHRUBBERY ROSES.—For planting in a mass as one would a bed of shrubs and so that we may leave them alone without cultivation, if need be, or pruning we have nothing to equal the Japanese rugosa roses, both the red and white varieties. Their foliage is of the richest kind and seems to be free from insect and fungus pests, and the flowers bloom early and are delightfully fragrant. They also bloom a little during summer, and in fall they are brightened by a crop of big orange hips. Don't forget to plant a clump of Sweet Briar. As a rose its blossoms amount to nothing, but the delightful fragrance of the young leaves and growths, wafted in the atmosphere morning and evening is exceedingly grateful.

AMONG MOSS ROSES, Glory of Mosses and Princess Adelaide do very well here. They don't seem to be as popular as they used to be years ago, still there is a fascination about a fresh mossy bud that all the glories of a Dalkeith, Lamarque or Rothschild remontant rose cannot displace.

New Jersey. RIVERTON.

ROSE BELLE SIEBRECHT.

This is a new and beautiful rose, and one of the sensation plant novelties of the year. It was raised in England some years ago, where (at Chester) under the name of Mrs. W. J. Grant, it received the highest award possible to a rose, namely, the National Rose Society's gold medal; and also several first-class certificates at various other exhibitions in the country. The whole stock of the rose was then bought by Messrs. Siebrecht & Wadley, florists, New Rochelle, N. Y., and brought to this country, and since then it has been held and propagated by them alone till this season, when they are offering it for sale. As they owned the complete stock of the rose they have changed its name to Belle Siebrecht.

Although we have never seen it growing we have had the pleasure of examining the flowers on two or three occasions, for instance, some months ago at the dinner given by some of his florist friends to Dean Hole in New York, when a vase of splendid blossoms of this rose graced the table; at a chrysanthemum exhibition in New York; and a week or two ago when the owners sent us a box of these lovely roses. The flowers were very fine, large, full, long in the bud, glowing rich pink, and powerfully fragrant, and they lasted well, retaining their fragrance to a remarkable degree. The stems were stout and sturdy, and the foliage clean, bright and leathery.

It is a seedling of La France crossed with Lady Mary Fitzwilliam.

We asked Messrs. Siebrecht & Wadley for a photograph of the rose, and they sent us the one from which we had the illustration herewith given engraved. But as compared with the blossoms sent us it in no way equals them in merit.

ROSES—WOOD ASHES—MILDEW.

I find using wood ashes as a top dressing, quite freely, cures and prevents mildew on my roses. My "Her Majesty" was mildewed all over; the big thorns were as velvet with it. I took a cutting from the bush and grew it with plenty of ashes as top dressing (after it became well established), then I raised a cutting from that plant, and I have a Majesty 8 feet tall, perfectly straight and symmetrical, and absolutely free from mildew. The original plant I had destroyed, as the mildew seemed incurable. I fancied the constitution of the rose had been impaired by excessive propagation, and that my tonic at the roots and new cuttings had produced for us a healthy bush. The flowers are perfection. I have good success with all roses, in curing mildew with the wood ashes. GARDENING is a household treasure. MRS. A. C. B.

Haywards, Ala. Co., Cal.

ROSES.—Now that the plants have begun to grow it is easy to notice how far the bushes have been hurt by the winter. Prune them back to good sound wood and healthy eyes. In the case of climbing roses cut out all of the dead or enfeebled shoots, with healthy roots and sound young wood a rapid growth is most sure to follow.

Orchids.

ORCHIDS.

No time should be lost in getting your orchids in condition for the growing season. Epiphytal orchids, such as cat-

tleyas, lælias, vandas, etc., should be carefully examined, and wherever any decayed matter is found it should be carefully removed, picking out as much as possible and then with the hose wash out what remains, then renew by using clean fern root. And if your fancy so directs, you may gather from the margin of the swamp the short stubby sphagnum and place it on top of the fern root. Encourage growth by shading and keeping moist, and when the sphagnum gets too high give it a slight shearing. The danger of the sphagnum mode of growing orchids is that in moderate weather when the ventilators are closed in fall if great care is not taken the sphagnum gets into a state of decay, and with the decay of the sphagnum comes the decay of the orchid roots. Now this decay of the roots of your cattleyas for two or three seasons means a speedy decline of your plants. Our winters require so much artificial heat that a certain amount of moisture must be used, especially atmospheric moisture, and if the cattleyas have their pots or baskets full of decayed sphagnum or other matter it is impossible to supply the necessary moist air that is so necessary to the life of the plant during its resting period.

Cypripediums I find do better in sphagnum than in anything else, but I do not know of any kind that does not like plenty of drainage, and they also delight in sending their roots through the surface of living sphagnum. They enjoy lots of water, but care must be taken that they get plenty of fresh air. I make a rule of filling the pots three quarters full of clean broken brick, and of going through the plants about twice a year to give them clean drainage and often clean pots. I tell you it pays to give them these little attentions. WM. MATHEWS.

Utica, N. Y.

The Greenhouse.

HEATING A GREENHOUSE.

I had a greenhouse about 28x13 feet heated with a hot water heater. The boiler was placed in a pit in a separate apartment, the top of the boiler was about 1 foot above the greenhouse level, the flow from the boiler was 1½-inch pipe, into a manifold, which was tapped on the face to receive 6 pipes, one inch each. They had a gradual ascent until they reached the further end of the greenhouse, where they emptied into a manifold, and this manifold emptied into a large piece of 4-inch pipe as an expansion tank, now the returns were made with a manifold from the expansion tank, on a downward pitch about the same as the ascent on the flows on the opposite side of the greenhouse. These empty into a manifold, and from here sink underground until they enter the return opening of heater. I have now removed to another part of the city and have had the greenhouse taken apart, and am erecting it again about 18½x13½ feet outside measurement. As I have all the pipes, manifolds, etc., please advise me the best manner to lay them again for best circulation.

Philadelphia. J. P. T.

Set the boiler in the pit, as shown on sketch, as much below the pipes in the greenhouse as it can conveniently be done. The lower the boiler the quicker the circulation will be. The pipes F to B should grade up one inch or more in each five feet, and from B to A four to six inches, or even more, if convenient. The return pipes should grade down from A to C to correspond with the grade from B to A. At C the main pipe should drop low enough down to pass under the doorways and walks, then enter the boiler pit through the cellar wall, and at E drop vertically low enough to enter the return opening of the boiler, the grade from D to E being 1 inch in five feet. If it is desired to use the old apparatus we can suggest no change in the general arrangement.

For a new apparatus we would advise very much larger pipes, and not so many of them, as the resistance to the circulation of the water caused by the friction in these small pipes is an important factor, and requires harder firing than would be necessary if the pipes were larger. Small pipes also cool off more rapidly if the fire accidentally burns low during the night.

WINDOW GARDEN QUESTIONS.

M. E., Tower Hill, Ill., asks the following questions:

1. HYDRANGEA OTAKSA. Having just received it from a greenhouse, how should it be treated for best results in summer, also so as to prepare it for wintering in a cellar?

Ans. Probably it is now in bloom. Keep it in a cool slightly shaded place, and now and all summer long give it water unstintedly. Repot it, using rich fibrous soil and a rather large pot or small tub, leaving lots of room at top to hold water. Don't prune it till late fall or early spring; you can keep it stocky by giving it lots of room out of doors in summer. Before hard frost sets in cut off the rankest leaves, and tie in the branches together, then set the plants into the cellar, but even there don't let them get dry at the root. We prune ours by thinning out the weaker shoots and heading back some of the strong ones to big plump eyes when storing them for winter; there's no fear of starting their eyes into growth prematurely then.

2. POTTING GERANIUMS. When shall I pot geraniums and slips or cuttings of them, and how shall I treat them so as to get reasonable bloom by January?

Ans. We presume you refer to plants to be kept in pots for blooming indoors in winter. Young plants raised from cuttings this spring and now in 4-inch pots do well for such a purpose. Repot them into 6-inch ones, using rich loamy soil, and pot firmly. Plunge out of doors in summer, but do not give much water to them, and lift up the pots, setting them back again, every week, to prevent the roots piercing through into the ground under them. By the end of July or first of August they should be fair sized, firm, ripe-wooded stock. At that time cut them in to a nice stocky form, turn them out of their pots and shake the loose dirt away from their roots, and repot, using clean, well-drained pots no larger, if practicable, than what they were in before. Plunge them outside for a month or so to let them break afresh. Keep them warm but not coddled, give them water whenever needed, and by Christmas in a sunny window they should be stocky, leafy plants, in bloom or showing flowers. Cuttings struck now or next month, and grown on in pots all summer, keeping them rather under than over potted should also come into bloom about New Year's.

3. MADAME BRAVY ROSE. I have it in a pot in a south facing window, its leaves are healthy and it grows well and blooms well (only one bloom at a time, though), but the last few buds when ready to open dry up and fall off. Is too hot the cause?

Ans. The cause is local, we can only guess it. Too hot would spindle the plants but hardly dry up the buds. Too little water at the root coupled with too much heat, a stifling dry atmosphere, imperfect drainage, or the like might do it.

4. IT IS CLAIMED there is a certain way to take a cutting from main or older branches to insure growth, and if you fail to get those cuttings you fail in their growth. Is this so?

Ans. The query is not specific enough to answer intelligently. Take lobelia, feverfew, ageratum, coleus or alternanthera, for instance, no matter how the cutting is made or not made, it will root with the greatest ease, geraniums, fuchsias and heliotrope cuttings should be made by cutting the young shoot close up under a joint, and removing the leaves at that joint; cuttings of lemon verbena are easiest to root when cut off close to the old branch with a "heel" or thin shaving of the branch attached to them; and so on in many ways.

5. BEGONIA METALLICA. I wish to grow it tree-like, but even though I cut the superfluous stems away they insist on coming again. How should I treat it?

Ans. It isn't a tree shaped begonia; its nature is to form a bushy several-stemmed plant. Plant it out in the garden in summer in a cool, moistish spot, shaded from warm sunshine, but not under the drip of trees. Lift and repot it early in August and get it well rooted in the pot before cold raw nights set in, or, if you keep its pot over summer, place it in a sheltered, faintly shaded spot.

6. RUSSIAN VIOLETS in a box in the window are growing nicely with me. Can I grow it in the open ground over winter?

Ans. We think so. It does well in the open garden at Dosoris, and is now, April 24, a mass of blue fragrant blossoms. It likes a cool moist place, protected from cold winds, and if faintly shaded in summer so much the better. Although very pretty, the flowers are not as fine or long stemmed as we had them in cold frames at and before Easter. Evergreen branches laid over them make a fine winter protection, but any rank, dry mulch will do. If you have them in clumps you can invert old soap boxes or the like over them in winter and mulch around them.

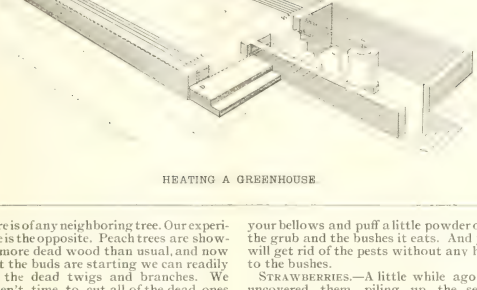
VOLKAMERIA—CLERODENDRON. — A. C. B., Haywards, Cal., writes: "I would like to get a shrub or plant called *Volkameria aculeata*, also *Volkameria acerbiana*, but do not find them listed in any catalogue." *Volkameria* is a syn. of *Clerodendron*. We do not know either of the species named.

The Fruit Garden.

THE FRUIT GARDEN.

As it is the 25th of April we cannot do better than tell you what we are doing or about to do in this department.

THE ORCHARD trees have all been pruned. Where pear trees had been injured or killed by fire blight we rooted them out and planted peach trees in their place. There is a general impression that if a pear tree has been destroyed by fire blight and it is rooted out and cleared away, and a new and healthy young pear tree is planted in the same place, there is no more likelihood of it being blighted than



HEATING A GREENHOUSE.

there is of any neighboring tree. Our experience is the opposite. Peach trees are showing more dead wood than usual, and now that the buds are starting we can readily tell the dead twigs and branches. We haven't time to cut all of the dead ones out, but we do remove the larger ones. We have unearthed the fig trees and levelled up the ground about them. They have wintered well. Our orchard is in cultivated land and is manured broadcast every year. All of the open spaces between the trees are filled with garden crops, such as peas, beans, corn, squashes, rhubarb and the like. Root crops as carrots salsify and turnips, however, like more open ground.

THE GRAPE VINES have been tied up to stakes or trellises, and layers detached, lifted and transplanted. What big finely rooted plants we get from layers in a year. As soon as the wood buds begin to swell and before they burst into leaf we go over the vines and rub off all weak, useless and duplicate buds. Too many canes mean weak canes.

RASPBERRY BUSHES that were buried over winter have survived perfectly, those that were left uncovered have suffered a little. We have shortened the tips a little, tied the plants to their stakes or trellises, cleaned prong-hoed the ground and mulched it with h lf decayed sedge.

BLACKBERRIES have been treated in much the same way. As soon as they begin to grow look out for rust. If any sprouts come up whose leaves on the back are covered with a golden yellow rust, root them out unsparingly. There is no cure for it. And as it is common among wild plants there is no certainty of immunity from it. But we find if a plantation is badly affected with it another plantation a few rods away from it may be perfectly clean from it. Be very careful though never to save sprouts for a new plantation from the infested beds.

CURRANT AND GOOSEBERRY BUSHES are bursting their leaf buds and will be green in a few days. They were pruned some time ago, and recently we cleaned the ground and prong-hoed it to make it readily accessible to air and water, and then we mulched it with old sedge to keep it cool and moist and the berries clean. Don't wait till the caterpillars come and eat up the leaves of the bushes before you think of destroying them. Get a powder bellows—not a little 5 cent arrangement, but a regular insect powder bellows—and at once some fresh hellebore powder. When the bushes are wet with dew in the morning dust them over with the powder; if you don't see a caterpillar before that time powder them again in a fortnight, and again a fortnight later. But the moment you see a caterpillar run for your bellows and puff a little powder over the grub and the bushes it eats. And you will get rid of the pests without any hurt to the bushes.

STRAWBERRIES.—A little while ago we uncovered them, piling up the sedge mulching close by the beds. Then we cleaned the beds, freeing them from grass, dandelions or other weeds, and prong-hoed between the rows to even and unfasten the land to admit air and water readily. Then we replaced the mulching. We carried it in big forkfuls all over the patch, shaking it evenly and loosely over everything—plants and ground. Then laying our forks aside we straddled the rows, parted the straw aside from over the plants, although drawing it in closely to them. Now the plants are exposed to the light and their roots are kept cool and moist by the mulching between them, giving them unrestricted freedom to grow and bloom. After we get a rain to pack down the mulching better and the plants are in full growth we will go over them again to pack the straw more closely in about the plants to keep the berries clean. It is well to do this just before they are in full bloom. If you want to make a new plantation you can do so yet. If you are to use your own grown plants by lifting them with a ball and planting them carefully, they transplant well. Bought plants although they haven't any ball of earth to their roots, are generally well rooted stock, and if they are taken, planted and watered, and kept cultivated and moist in summer they should do well

MELONS.—We got a lot of pots and filled them with light loamy soil and set them close together in a warm frame out of doors. We then dropped two or three seeds into each pot and covered them. Over the frame we then placed sashes and wooden shutters till the seedlings appeared, when the shutters were dispensed with. The sashes are retained, however. This should give us nice strong plants to set out in hills a few weeks from now, further we find that such strong plants are seldom destroyed by cut worms, as seedlings raised in the open garden or field are apt to be.

MY HOME GARDEN.

After an absence of nearly a year I am once more at home and in my garden, that blest resort for a worried mind and impaired digestion—that superb cure for pessimism, the outgrowth of city life. I rise early in the morning in order to get in it and at the same time fill my lungs with pure air, and everything in it seems to smile a greeting at me and give me a hearty welcome home.

The first thing to attract my attention was my raspberry bushes. I have heretofore done more or less summer pruning, pinching off the tips, etc., but I became thoroughly satisfied that it was not a good method, and last season they were all allowed to grow at their own sweet will. It has s emed to me that pinching back sent out many laterals which never properly ripened their wood and which were badly winter-killed three years out of four. This spring to my delight I find Shaffer, Columbian and Cuthbert in the best possible condition, every part of them alive to the tip of the vine. This in spite of the fact that the winter has been a severe one, the temperature being 10 degrees below zero for a week at a time. At present I think I shall never again do summer pruning of my raspberries. My blackberries were treated in the same way with similar results.

A word here as to the Columbian raspberry, of which I have a dozen plants sent by the originator to me for testing. So far (they have borne two crops) they seem perfectly hardy and are, without exception, the most wonderful growers I have ever seen. The fruit is of the Shaffer type, of better quality and they are more productive.

My STRAWBERRIES are yet under a heavy winter mulch of coarse manure. Here and there a green leaf may be seen where the mulch has been dragged or blown off. If uncovered, in this pleasant April weather, they would be growing rapidly, but that is just what I want to avoid. Our great trouble with strawberries is the late frost which rarely omits a visit here, coming generally between the 1st and 15th of May. By keeping my strawberries covered until about April 20th I retard their blossoming, and so escape the ravages of the frost. Among them I have a short row of Timbrell, a strawberry which has had higher praise and severer denunciation than any other before the public. I have been pleased with its vigor of growth and more than pleased with its superb quality (I know of no other variety so good), and this season I hope to know something of its productiveness, etc. We will discuss it later. E. G. FOWLER.

Orange Co., N. Y.

STRAWBERRIES.—Every man, woman and child having a rod of ground should grow strawberries. They may be produced on almost any soil, and a child may grow them. There is no fruit so delicious, none more productive, healthful, so easily grown, or easily protected. Berry plants are huge feeders and hard drinkers; they require the atmosphere above and the soil beneath to sustain them. Every little fibrous root is a suction pipe, pumping up food and moisture from below. Neither are they particular what they feed on. When well prepared for their use they will take all refuse, drippings and droppings. They should have all the good, well prepared food they can utilize. This, to the fruit grower, means rich soil well prepared, and always in good condition.

Sparta, Wis. M. A. THAYER.

SWEET CHESTNUT TREES.—In reply to several correspondents: The leading nurserymen advertising in GARDENING can supply them, yes, all of the varieties mentioned. Three to four feet high, 2-year grafted plants. Send for the catalogues and see what they say.

LET ME express my thanks to you for the courtesy of your replies to my inquiries, I have found them of much value.

Newark, N. J. V. W. B.

GARDENING

WILLIAM FALCONER, Editor.

PUBLISHED THE 1ST AND 15TH OF EACH MONTH
— BY —
THE GARDENING COMPANY,
Monon Building, CHICAGO.

Subscription Price, $2.00 a Year—24 Numbers. Advertising rates on application.

Entered at Chicago postoffice as second-class matter.

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All communications relating to subscriptions, advertisements and other business matters should be addressed to The Gardening Company, Monon Building, Chicago, and all matters pertaining to the editorial department of the paper should be addressed to the Editor of GARDENING, Glen Cove, N. Y.

GARDENING is gotten up for its readers and in their interest, and it behooves you, one and all, to make it interesting. If it does not exactly suit your case, please write and tell us what you want. It is our desire to help you.

ASK ANY QUESTIONS you please about plants, flowers, fruits, vegetables or other practical gardening matters. We will take pleasure in answering them.

SEND US NOTES of your experience in gardening in any line: tell us of your successes that others may be enlightened and encouraged, and of your failures, perhaps we can help you.

SEND US PHOTOGRAPHS OR SKETCHES of your flowers, gardens, greenhouses, fruits, vegetables, or horticultural appliances that we may have them engraved for GARDENING.

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WATERING NEWLY PLANTED TREES.—The earlier in the season trees are transplanted the less need there is of watering them; but as the season gets late and the weather warm and dry it is unsafe to transplant trees without first wetting their roots or watering them as soon as they are planted. Deciduous trees and shrubs can be handled with tolerable certainty, the later and drier the season is when they are planted the harder we cut in their tops. But we cannot very well do this with evergreens. Instead, we sprinkle them overhead with water twice a day for a few days after planting, then once a day till we are sure the plants have "taken to the soil."

IS HYPERICUM MOSERIANUM HARDY?—At Dosoris we should say yes. Notwithstanding the unusual severity of the past winter our plants, even those that were not covered up or mulched, are alive and starting to grow. But all have had their tops killed back to the ground or mulch line.

MAMMOTH VERBENAS.—P. H. complains that he cannot get a good strain from the seed he buys, and asks where he can get the best seed. We cannot tell. But as the true mammoth verbena is a very poor seeder, and it would take a great deal of seed to supply the demand for it, we don't think the genuine article is very plentiful.

BERRIED SHRUBS.—Among shrubs still (April 24) retaining a good crop of last year's berries are Thunberg's barberry, red; Ibota privet, black, and Japanese creeping rose (*Rosa Wichuraiana*), dark red or crimson. But the barberry now taking on its coat of new leaves, and studded all over with the brilliant berries is very conspicuous.

TO GET GOOD PANSY SEED, take the finest varieties you have now in bloom, lift them carefully with good balls of earth and plant them in some cool, moist, sheltered place by themselves, and there let them bloom and ripen seed. You may gather the seed as it ripens or let it drop on the ground, when it will come up itself next July or August and give fine plants for keeping over winter. In the everyday pansy bed we are apt to pluck the finest pansies to use as cut flowers, leaving the indifferent ones only to go to seed. That must deteriorate the strain. Selection improves it.

IMPROVED ILLUSTRATIONS IN CATALOGUES.—We are pleased to note that some of our foremost nurserymen are illustrating their catalogues in whole or part with beautiful half-tone engravings like what we use in GARDENING. Such pictures as a rule are engraved from photographs, and therefore are no exaggerations at all, they are the plain truth. And how much more natural and beautiful the subject appears; a tyro can see it. This inspires confidence. In the catalogue of the Framingham (Mass.) Nursery Company just to hand every illustration is of this sort. Messrs. Ellwanger & Barry, Pitcher & Manda, Wm Tricker and some others are also using half-tone engravings.

CATCH THAT MOLE.—If there is a mole in your garden, catch it and kill it, this is the only way in which to get rid of it; don't bother with "mole plants," castor beans, or anything of that sort, but get a couple of traps, and set them twice a day till you get rid of every mole on or about your place. Among the several traps we have here and have seen at work elsewhere the Reddick is far and away the best. It is easy and safe to set, sensitive to the touch, and sure death to the mole. The prongs of those first made were a little too long, but in the ones now made this has been remedied, and the trap now stands perfection among mole traps. We have six traps and not one mole on Dosoris island. But every now and again the moles come in, they cross the bridge from the mainland or come in in loam carted in from outside fields.

GLOBE ARTICHOKES.—One of our subscribers who is a commercial gardener had an order for some globe artichokes the other day, but he didn't grow them himself and he didn't know where he could get them, and he grieved over having to disappoint his customer. When GARDENING (April 15) arrived and he was examining it he came to "artichokes," and his heart was g ad, and he exclaimed "Dosoris, to be sure, I'll get them there," and off to it he sends, and by return, with our compliments and delighted to let him have them, he got all he wanted. This is simply one case in po nt showing the confidence of our readers in our notes; those who know Dosoris know that these notes are the voice of actual practical experience in the field, and never the scurrying of the imagination nor fudge from books, catalogues or other writings. But while much is grown nothing is sold at Dosoris

BERMUDA LILIES.—In answer to J. C. A.: Don't worry. If we never got another bulb from Bermuda there wouldn't be a lily famine. But so long as the Bermuda people grow good bulbs and sell them to us for less money than we can buy them anywhere else, so long we shall continue to patronize them. If California, Carolina, the Levant or any other place goes into the lily growing business and produces a better and cheaper article than we now get of course it will get the trade now monopolized by Bermuda. Claiming to be able to do it isn't everything, why don't they go ahead and do it? We believe in works. "Lily trust!" If rival concerns, those "in" and those "not in," influenced by business jealousy, raise a tempest in a teapot, what need we care? Let them pick their own chestnuts out of the fire. True, they have got the lily disease in Bermuda, and we have got it here, and we don't know of anyplace else where they haven't got it. "Should Congress pass a law prohibiting the importation of Harrisii bulbs from Bermuda into this country?" We don't see why it should.

Insects.

LOOK OUT FOR BUGS.

In many orchards and some gardens it would seem that bugs are much the most successful crop; and what remedy is there except early, active and repeated washing and spraying? A knapsack sprayer answers very well to scatter the insecticides in grounds of moderate size. For somewhat large ones a half-barrel size on a wheelbarrow answers well, especially for currants and gooseberries, as well as for potatoes. But on any considerable scale a standard sprayer is essential.

Let me call attention strongly to the importance of going over all fruit trees and destroying all cocoons of hibernating grubs a tach d to the branches. It saves much trouble and injury, later on. These cocoons are easily seen before the leaves come out. Afterwards, you will have difficulty in detecting the worm until his ravages have been far too extensive.

There are a number of small insects, mostly scale insects, which can only be fought during the few days after hatching while they are spreading themselves over the new growth. Pretty strong soap suds, rubbed on with a swab, will kill most of these; but be careful not to kill the "lady bugs" which feed upon them, and yet are often mistaken for the injurious class. Washing with soap-suds, applied with a cloth and moderate rubbing to the limbs, will destroy not only insects, but also the parasitic mosses which supply hiding places for insects. T. H. H.

Newport, Vt.

The Vegetable Garden.

THE VEGETABLE GARDEN.

The spring is late, the nights cold, the weather dry, and the land is dry. Peas, spinach, beets, turnips carrots and some other hardy things sown this spring are up. We have been using outdoor spinach and kale (to be sown last fall) for some time, and outdoor rhubarb for a week, and cut our first asparagus yesterday, April 25. And there are lots of dandelion yet. Potatoes, cabbage, cauliflower, Jerusalem artichokes, horse radish, sets onions and winter sown (in the greenhouse) onions have been transplanted, and doing well. We are cutting a second crop of lettuces from the hotbeds, and planted several kinds out of doors. From a running spring near by we have been gathering water cresses since a fortnight.

In warm light rich land we sowed this week snap beans, sweet corn, Henderson's dwarf Lima and some pole Limas, but this especially in the case of the last named is quite a risk. If we escape frost we are so much ahead; if we are caught we sow again in the same hills or rows.

Look over the notes written for last issue (April 15, page 233), much of what was written then is applicable still.

Snap Beans.—After they get stringy there is no pleasure in eating them, therefore if we want fresh brittle pods we should put in a fresh sowing every two weeks from now till the end of August. Sow two kinds, say Valentine and Refugee, or a Wax bean, at a time to make the succession better.

Limas.—Have the poles 3½ by 3½ feet apart, or if you have many together 4 by 4 feet is better. Set the poles deep and firm. Dig around them to make the soil loose and mellow, then firm it slightly with the foot or hand, and sow the beans, about five to a hill, on edge and eye down, and no more than an inch below ground. Having the seed on edge rather than flat on their sides is a precaution against rotting, especially early in the season.

Beets.—Thin those that are up to 3 or 4 inches apart in the row to cause them to bulb quickly. Sow once a month for a succession.

Brussels Sprouts.—If you haven't done so already sow some half dwarf out of doors at once. They need a longer season than does winter cabbage.

Cabbage.—Plant out whatever you have ready. Eighteen inches apart gives them room enough, for some are sure to die out with root maggots or other disease. For late summer and fall use sow some seed of Succession or other good kind. We don't sow for winter cabbage till after the 25th of this month, but in cooler parts sow a little earlier.

Carrots.—Thin out the seedlings to an inch or two apart. Make two or three sowings during the summer.

Cauliflower.—Treat as for cabbage.

Celery.—Do as advised in last issue.

Chervil.—Sow a little in a corner to cut for flavoring.

Corn.—As soon as danger from frost is past sow some corn. But really on account of the corn worm we get very little pleasure of our earliest corn; it always is attacked. The later sowings are tolerably free from the pest.

Cucumbers, Melons and Squashes.—As soon as frost is past sow these in hills out of doors. As the cut worms eat off so many of the early ones we also sow in pots in a frame, and when these are big and strong enough to resist the grubs we plant them out.

Egg Plant and Peppers we like to keep snug and warm in frames till the weather warms up pretty well, say towards the end of May.

Onions.—If not already done sow as soon as possible. Our seed rows are 15 inches apart, just enough to let us work easily among them.

Parsley.—If not sown, get it into the ground at once, for it is slow to germinate. Old plants run to seed, so are of no use for summer work. But we get a nice picking from them in spring before this year's sowings are big enough to pluck from.

Parsnips, Salsify and Scorzonera.—In deeply unfastened ground the roots have a chance to get straight down without much hindrance, hence are apt to be better than in shallow land. Sow them this month in rows 2 feet apart.

Spinach.—Sow a row here and there between peas, or other crops; as it is up and off so soon there is little need in occupying a separate piece of ground by it.

Tomatoes.—Get them gradually, but properly hardened off before planting them out. We plant them about the middle of the month.

Turnips.—Thin those already up, and once a fortnight sow a row to insure to you young tender roots.

SECOND CROP POTATOES.

I note what you say about second crop potatoes, page 217, and our leading seedsman, Mr. Ullathorne, has also called my attention to it. You say they are immature and not good to eat. That may be true as regards those grown in the north. But in the south they mature perfectly and are delicious eating. Here in Southern Tennessee our second crop potatoes mature about the middle of October, and from then till Christmas they are dug thoroughly matured, and if you ever ate anything really excellent it is our second crop. But one can hardly afford to eat them, they are needed for planting. They are generally dug in late fall and banked out in the open field till January, when they are planted again for the spring crop. But I leave mine in the field all winter, digging them as required for use, and prefer this to pitting them. And let me tell you there is a wide field here for northern people to come and raise second crop Irish potatoes alone.

Memphis, Tenn. James Stewart.

All very true. You plant in January (as you know we spent nearly two years at gardening in the south), we plant in March, April or May, according to how far north you come; at Dosoris it is the second or third week in April. That note, therefore, was not meant for the south. Second crop southern grown potatoes are sold in the north for seed, not for eating, no matter how good to eat they may be. Northern grown second crop, as stated in that note (page 217), are immature and not good to eat, but excellent for seed. In fact raising them here is a matter requiring judgment and experience. But it is done. Some months ago in company with Mr. L. V. Hallock of Queens and Mr. Rider of the Jamaica Bank, we visited Mr. Abram Van Sicklin's place. He is one of the oldest, largest, most successful and money-making market gardeners on Long Island, but silent as a sphinx as regards his methods of cultivation. But we found him especially buoyant on the subject of potatoes, and he brought us down into his cellar to see and examine his own grown second crop sets. They were an even handsome lot of potatoes as one could see, but as he told us not very good to eat, they were too immature. A run around among these market gardeners is one of the treats we have in store for you if you visit us this year.

SECOND CROP POTATOES.

Second crop potatoes such as are grown in the south for seed, are raised from the early crop of the same season. In digging the first crop the potatoes to be used for planting the second one are spread out in the light for a few days to get greened. They are then spread in any convenient place and covered with pine straw, which is kept moist Previous to this covering it is best to chip off a small piece of the end of potato, as they sprout more readily with the skin merely broken. The potatoes under the straw will sprout from the first of August on, and we plant the sprouted ones up to the middle of August. These grow until killed down by frost, usually the latter part of November. Being out of the ground so short a time these make the best of seed for early planting, as they grow with the strong growth of the terminal bud. W. F. M.

Raleigh, N. C.

POTATOES.

W. M., Bar Harbor, Maine, asks: 1. Is there such a thing as Lady Finger potatoes, and if there is where can they be obtained.

2. What is the best baking potato?

1. Yes, there is a potato called Lady Finger. It is occasionally grown as a fancy variety, but never, so far as we know, as a main crop. Some people like it and others regard it as worthless. Try Mr. Myron F. Pierson, Seneca Castle, Ontario Co., N. Y.

2. Mr. Silas L. Albertson, who has had great experience with potatoes tells us "except the Lady Finger the best potato for baking is the Home Comfort, a variety grown in Steuben Co., this state (N. Y.)." Speaking with our esteemed friend Mr. E. S. Carman, of the *Rural New Yorker* the other day he mentioned Rural Blush as being the best potato for baking. By the way, the day before (April 19), Mr. Carman planted seventy varieties of potatoes in his experiment grounds at River Edge, N. J.

Dr. T. H. Hoskins of Vermont, says he finds the Polaris to be the best potato for baking.

LETTUCES—OKRA.

On the 10th of April, in southern New York, I planted three varieties of lettuce and four of radishes in the open air. I have, of late, become specially pleased with lettuce of the Cos type, and I have been very successful with it, I think it within bounds to say that 95 per cent of all that I transplanted made perfect heads. It is not five minutes work to slip a little rubber band around a hundred of these plants, when nearly full grown, and in a week or ten days you find them beautifully blanched, tender and delicate. Last season I had Paris White and Trianon—this season I shall try the same and a new type, dwarfed, sent out by Burpee. Of the head lettuce of the ordinary kind, I find nothing better than the Deacon. It makes very solid heads, which are easily blanched, and it remains a long time in the hot summer weather without going to seed. [All quite true.

And we grow it every year because of its certainty in heading in summer. But it is of poor quality. In view of its high standing as a "head" lettuce this unfavorable statement may bring a storm of dissenting opinions upon us, but the fact is there just the same. The Cos lettuces are of fine quality, but as they "bolt" so soon in hot summer weather we omit them after July.—ED.]

OKRA.—Each year finds me more and more fond of okra as a garden product. In soups and ragouts it is especially valuable, and stewed by itself is a delightful dish. It makes also one of the most delicious and dainty pickles, gathered when small and very tender. I would not be without it. It is very easy to grow.

E. G. FOWLER.

QUESTIONS ABOUT MUSHROOMS.

G. E. W., Dickson avenue, Scranton, Pa., asks:

1. Can mushrooms be grown in summer to pay?
2. How long does it take to grow them from spawn?
3. Where can English spawn and French flake be obtained?
4. At what price per pound?
5. Where can full instructions in regard to raising mushrooms be had, and at what price?

1. Yes. The common mushrooms in caves, and the "new" mushroom in frames or greenhouses, or even out of doors.
2. About six weeks.
3. At any leading seed store advertising in GARDENING. The French, however, being in less demand is in proportionately less supply.
4. English about 12 cents per pound. Large lots cheaper.
5. Mushrooms: How to grow them. Price $1.50. Can be had from the publisher of GARDENING.

WILL TOMATOES MIX?

J. B. F., Kansas City, asks: "If two varieties of tomatoes are planted near each other will they mix; and if so, at what distance apart should they be planted to prevent this?"

They are apt to. But if a variety is pretty well fixed in character, even if grown contiguous to another, most of the seedlings raised from it are apt to resemble the seed bearing parent. For instance Dwarf Champion, Acme, Perfection or Peach. How far apart to have them to keep them true? There is no certainty, because by wind, insects or other uncontrollable means the pollen of a variety rods away may be carried to the stigmas of those we wish to keep pure. But a few rods apart, or in separate fields gives reasonable security.

GROWING BUNCH YAMS.

C. H. H., Charlottesville, Va., asks Mr. Stewart to "please inform me whether you practice hill or level culture in raising them?"

Mr. Stewart answers: "On ridges by all means, as we do in planting Irish potatoes. And plant early, laying a liberal allowance of cotton seed meal under the sets in the hill."

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It is not generally known that the beautiful race of Chrysanthemums known as Pompons is perennial and perfectly hardy. We have secured from Japan, England, France and America a **magnificent collection of about one hundred distinct varieties,** of almost every shade, color and blending. They have only to become known to be appreciated as one of the most charming and desirable classes of plants for the garden.

During the months of September, October and November, and when heavy frosts have cut down all other flowers, these Pompon Chrysanthemums are still in their autumn glory. **Price, 25c. each; $2.50 per dozen.**

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Is perfectly hardy in the open garden, and one of the most remarkable introductions in many years. A shoot will grow ten feet in a single season, and has produced as many as 300 blooms in magnificent clusters. This Rose is superb for pillars and trellises. Received Gold Medal from the National Rose Society of England, National Horticultural Society of France, and First Class certificates wherever exhibited. **Price, 35c. each; 3 plants for $1.00.**

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SLUG SHOT helps the plants to grow, and keeps away the little STRIPED BUG and BLACK FLEA, and if they will stay it KILLS THEM. To raise Swede Turnips, Radishes and such like plants, IF YOU DO NOT CARE TO SOW THE SEED BUT ONCE, dust the rows with SLUG SHOT just before they come up, and you won't blame the seedsman for bad seed. And when you set out Tobacco plants or Cabbage plants put SLUG SHOT around and near the plants and stir it in the soil, for this keeps away the cut worm, and I never saw a root maggot come to any cabbage so planted. Some are wise and some otherwise. SLUG SHOT ALSO UTTERLY DESTROYS SOW BUGS. THE BELLOWS for applying is the best for economy in the garden, and the DUSTERS for potatoes and Turnips. For potatoes if SLUG SHOT is used lightly, it is cheap to use; if you throw it on the tops heavy, it does little good, the Bugs don't touch it; use it light, spread it on fine, and I'll warrant any man will get a good crop of potatoes.

Remember that the Blight comes like a thief in the night; keep a look out and use the SLUG SHOT from time to time. These conclusions I have arrived at after many years of trial and observation.

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Miscellaneous.

FUNGOUS DISEASES OF ORNAMENTAL PLANTS.

Dr Byron D. Halsted of Rutgers College, and a high authority on the subject, in a paper read at Boston on the 26th ult. said in substance: If your plants are already infested with fungous diseases it will be a very hard matter, if possible, to cure them by the use of any known fungicides. To keep your plants clean you must use preventive, not curative, means; by an intelligent, free and persistant use of fungicides before the fungous diseases attack the plants you can keep them away; but let the disease once get hold, fungicides can do little more than keep it in check. Dr. Halsted said one hundred and sixty-five kinds of fungus diseases are known to attack the rose; commonest among these are the black spot (*Actinonema rosæ*), powdery mildew (*Sphærotheca pannosa*), a downy mildew (*Peronospora sparva*), rose anthracnose (*Glœosporium fructigenium*), and rose leaf blight (*Sphærella rosigena*). The carnation rust (*Uromyces caryophyllinus*) and the old carnation disease or leaf spot (*Septoria dianthi*) are the most troublesome to this plant. Violets are subject to two leaf spots (*Cercospora violæ* and *Phyllosticta violæ*) The discoloration at the ends of green leaved dracænas is caused by a fungus (*Phyllosticta maculicola*). The yellow spots on palm leaves are the work of an anthracnose fungus (*Colletotrichum kentiæ*) The damping off of seedlings is generally caused by a fungus (*Pythium De Baryianum*).

The preventive means are, first, to start new plants from healthy stock; secondly, to prevent the germs of decay from entering the healthy plants; and thirdly, if such are present to check their growth as much as possible. Germs of decay enter from the soil or the air. The seed bed and cutting bench should be germ free, and to this end all the woodwork of greenhouses should be cleaned as frequently and thoroughly as possible. A frequent change of soil is important. But after these preventive measures have been carried out it will be necessary to provide fungicides for occasional use in the greenhouse, as well as in the orchard and garden as germ destroyers. For roses the mildew may be controlled by sulphur, either dusted upon the foliage or heated upon the greenhouse pipes. The black spot has been checked by Bordeaux mixture, and the ammoniacal solution of carbonate of copper. The formula for Bordeaux mixture is five pounds of lime and five pounds of sulphate of copper in fifty gallons of water; each may be prepared and kept in stock, to be mixed as needed for spraying. The formula for ammoniacal solution of the carbonate of copper is five ounces of carbonate of copper dissolved in three quarts of strong (4F) ammonia, to be afterward added to fifty gallons of water. These two fungicides are the chief compounds that can be recommended for fungous diseases in the greenhouse. A solution of potassic sulphide (½ ounce of sulphide to one gallon of water) has proved a successful remedy in carnation diseases. Good results have followed the use of Bordeaux mixture for fungi on violets and many other plants would doubtless be benefited by its use. But the work against injurious fungi must be preventive instead of curative, and the old adage "An ounce of prevention is worth a pound of cure" is nowhere more applicable.

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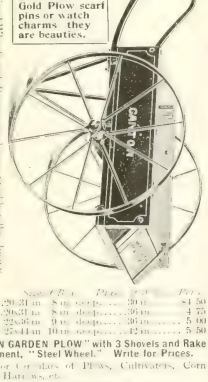

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F. M., Eubank, writes us as follows:

I herewith send you seed of a very early muskmelon which I believe you will like [Seeds received Thank you.—Ed.]. It is a sweet, green-fleshed melon with a peculiar hickory-nut flavor that I am very fond of. As I have fine success growing melons, please don't think me egotistical if I tell you how I treat them [On the contrary, in telling us you confer a favor on us.—Ed.] I select the driest and sandiest ground, dig it very deep, and enrich it with well decomposed sheep manure or cow manure, then raise it into hills for the seed. And I sow late.

THE YELLOW BOTTOM WATER MELON is something new, it will probably be introduced as a novelty in a year or two. It is the best melon I have got hold of. I send you a few seeds for trial. If you succeed in getting any seeds of the Muskill water melon kindly let me know from whom as I wish to buy some too. [We have written to several Virginia firms for it but without success. Our esteemed friend Mr. Silas Albertson of Long Island, however, has sent us some seed that he himself saved from a melon of extraordinary excellence he had eaten in Virginia, and which he believes was the true Muskill.—Ed.]

PEARS.

Many years ago I procured the Howell, Onondoga and Swan's Orange from Mr. Hicks. The Howell is spoken of highly, but the Onondago is better with us. [The Howell bears well—nice, smooth fruit—every year at Dosoris, but it is of poor quality.—Ed.] S. L. A.

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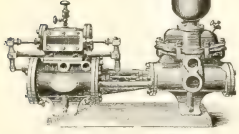

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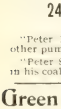

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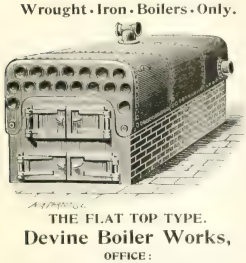

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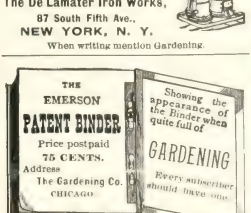

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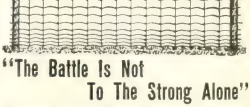

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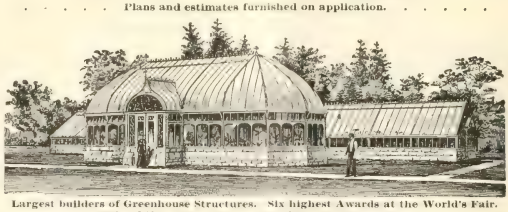

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GARDENING

Vol. III. $2.00 A YEAR. 24 NUMBERS. CHICAGO, MAY 15, 1895. SINGLE COPY 10 CENTS. No. 65.

JAPANESE CRAB-APPLE IN BLOOM AT DOSORIS

Trees and Shrubs.

THE JAPANESE CRAB APPLE.

"Oh, how lovely! What is that tree?" are the exclamation and interrogation that escape almost unwittingly from visitors when they first come upon this beautiful little tree when it is in bloom. It blossoms at Dosoris in the second or third week in May (this year it will be in perfection about the 15th, when it is without any exception the most conspicuous, showy and florifierous plant on the estate. And it is only a crab apple! But isn't it a beauty? There are many varieties of it however, mostly differing in the tint or size or fullness of their blossoms, or the size or color of the fruit, and several of them are distinguished by gardeners' varietal names, as *atrosanguinea*, dark crimson buds, and *Parkmanii*, a semi-double, dark tinted variety that has been widely advertised and sold within the last few years. It is a good one too.

This little tree is known in gardens under the names *Pyrus Malus floribunda*, *P. Sieboldii*, *P. Ringo* and *P. microcarpa*, but the proper name of it is *Pyrus Toringo*. It is a native of Japan, and is said to be the only true apple tree indigenous in that country. It is found there in the northern and central islands, extending from the sea coast up into the mountains. In cultivation in our gardens it is a clean, healthy and very hardy plant, becoming a tree 15 to 20 feet in height. At first it is a little slow growing, being no more than a bushy shrub for several years, but even in this state it never fails to give us blossoms in extravagant measure. It likes good ground, and like most Japanese plants, rather moist if possible. We think the trees are most beautiful just as the crimson tipped buds are beginning to open, and before half of the blossoms have expanded. When open the flowers are pale pink, but the hue varies in depth in different varieties. The fruits, no bigger than common peas, are borne in the greatest quantity, and not only do they hang on the branches till frost sets in, but many of them stick on into winter or till they are frozen to a pulp. Economically the fruit is of no value.

It isn't a tree that is subject at all to insect or fungus diseases.

We mustn't confound this tree with the Chinese double flowering apple tree, which is not uncommon in our gardens; it too is a handsome garden ornament, blooming a few days later than the Japanese crab apple. We hope to give you a picture of it in next issue of GARDENING.

A HEDGE BY THE SEASIDE.

J. D. S., Conn., writes: I wish to screen some property with a thick growing hedge. The salt spray will strike it occasionally. What can I use? I would like to use a willow unless there is something much better.

If you can give it good soil and keep its roots away from the salt water the laurel leaved willow should do fairly well in such a place. You can cut it in every year as much as you want to. While it makes a fine growth in summer it is naked enough in winter. We have tried several willows on the coast where the salt water got to their roots once or twice a year, but all have failed; where the salt water didn't get to their roots, however, they have braved the storms nicely. The golden barked willow, a bushier tree, has also done well with us, but a salt water soaking at the root will injure it greatly. California privet will do well if the soil is rich. Honey locust will both stand the spray and a little root soaking too, and it makes a quick, light hedge; sea buckthorn should do extra well, so should barberry, but probably neither is big enough for your purpose.

BOX HEDGE—ROSES—BOOK ON FLOWER GARDEN.

A. B. C., Orange, N. J., asks: "1. How can I start a box wood hedge from a box wood shrub? 2. Are English, German or American roses the best to buy for a rose garden? 3. What is the best book to consult for advice about a flower garden?"

1. There are two kinds of box, namely, tree box, which is usually grown as isolated specimens, and dwarf or edging box. The tree box would make a low or medium hedge in the north, and a strong hedge in the south; although the dwarf box will in time make a hedge two or more feet in height, it looks best when restricted to edgings of shorter growth. Both are propagated by cuttings, and the dwarf one in particular by division. From cuttings (supposing you have no cold frames to put them into): Take a lot of healthy leafy branches, 6 or 8 inches long, and shorten their tips a little; then in a thinly shaded place in moistish ground plant these close together in a row, burying them half their depth. Tamp the ground firmly about them, and sprinkle them overhead. And for a week or two sprinkle them overhead once or twice a day, but not so as to soak the ground. A good many of them will root. Then in a year or two lift them and plant them out so as to form the hedge row you wish to make. In resetting the dwarf box we dig up the old plants, chop off the deep rooted part, then tear the clumps apart into many pieces, which we cut into all about the same size, and replant them, keeping them so well down in the row that nothing but the leafy part is above ground. Of course some of the old roots are retained to each piece. They soon root afresh, mostly near the surface of the ground. Packing the soil firmly about them at planting time and a few sprinklings overhead helps them very much.

2. American by all means.

3. "The English Flower Garden," by William Robinson, London. Price, postpaid, $6, and it may be had from the publisher of this journal. Although this is an English work, it is, with a little discretion on our part quite applicable for use in this country. Its teachings are sound and practicable; it is the voice of actual and brilliant experience; it is right up to date and lavishly illustrated. In the matter of refined flower gardening, knowing it and practicing it, and being able to communicate the art to others, its author stands head and shoulders above any other gardener living.

A FEW DESIRABLE SHRUBS FOR FLORIDA.

Thevetia neriifolia bears some resemblance to the oleanders, and on that account is often called yellow oleander, though erroneously. Its varnished-like, pinnate foliage causes the shrub to be highly prized as a lawn plant. Its flowers are bell-shaped, and borne continuously and profusely. They are of a beautiful shade of yellow. All summer the plant is a mass of golden bells, often weighing the branches to the ground. In the fall it bears fruit, which are called geigar apples. They are not edible, though not poisonous, as some appear to think; yet the plant belongs to a genus of plants, some of which are poisonous. The apple contains a hard shelled seed which is very peculiarly shaped. They are often worn by sailors and colored people, and are called "Tricky" seeds. They germinate readily. The plant is increased by root division, cuttings and seeds

Poinsettia pulcherrima, though a greenhouse plant at the north, grows to good sized trees in some parts of Florida. Its tropical foliage is very attractive, and when in bloom it is magnificent. The flowers are very insignificant, but the bracts that surround the flowers are brilliant. They remain in bloom a long time. For Christmas blooms, the cuttings are rooted in summer. At the north they are prized highly for Christmas decorations. When they are growing the ends of the branches are broken out, so as to cause them to branch out, and thus obtain more blooms. Each branch has a bloom.

Allamanda is highly ornamental as a climber, or in bush form. Its immense blossoms of golden yellow are borne in great profusion. When a fine specimen is covered with blooms it calls forth exclamations of delight from all who behold it.

Duranta is a shrub also known by the name of golden drop, and very appropriately so, as golden drops follow the lavender blossoms. It may be grown in bush form or as a climber. Cuttings root readily and soon make fine plants E.

Florida.

The Flower Garden.

HARDY FLOWERS—OLD FRIENDS IN FRESH DRESSES.

Among all the pleasures of gardening, and there are many, none are more welcome than the annual development of hardy perennials, whose simple wants, your conscience tells you, you have supplied. Amid the anxiety attending your hothed occupants, the fear of tardy frosts, and the antics of the nocturnal cut worm, there is a peaceful feeling in the assurance that come what may, your hardy perennials will be in line and take their place in the floral procession at the proper time. For this they ask, and deserve, good treatment. Exuberance of flower and foliage require a proportionate amount of food. One must remember that a plant is like a horse tied to a manger, he cannot forage for food, it must be brought to him.

No garden plant responds to generous treatment more cheerfully than the tall growing phloxes. Hybridizing has caused a wonderful improvement in this family since the days of our grandmother's gardens, both in size of bloom and brilliancy and variation of color. In the picture here illustrated are two varieties, the one in front being the dwarf white Panama, about eighteen inches tall, and back of it is Woolson's "Resplendens," which measured completely five feet high when in its prime last August. The color of this phlox is a crimson remarkably brilliant and effective at a distance. The plants retain their foliage down to the ground and completely hide the cane stakes used in protecting them against the heavy wind storms. This staking is a very necessary help where an even mass of bloom is desired, and each individual truss is given its proper place. This bed is ten feet square, two feet deep, drained; soil rather heavy and well manured at the start. Each winter a coating of old manure is put on, some four inches deep. In the spring only the rougher part is removed, and during the summer water is given freely. Every third fall the plants are taken out, divided and replanted, some soil being carted away and fresh loam added. The two beds of grasses consist of *Arundo Donax* (first year) for the center, then one row of *Eulalia Japonica zebrina* with *Eulalia Japonica striata* for the outer row. They receive about the same winter and summer treatment accorded to the phlox, except that the crown of the *Arundo Donax* is covered with a board or anything to keep the water from it. I have carried the arundo through five winters thus protected.

Highland Park, Ill. W. C. EGAN.

LILIES FOR THE GARDEN.

Lilium auratum (golden rayed lily) stands at the head of the list of cheaper sorts, and perhaps of the whole genus. So far as I have seen in growing it here, a rather heavy soil, principally loam, but with perfect drainage and always moist, is what it needs. For a fertilizer to be worked into the bed before setting, a compost of leaf mold, peat and turf loam is as good as anything. This should be worked in to a good depth below the bulbs, and the bulbs surrounded by half an inch of sand or pure loam. Never let the bulb come in contact with the enriched soil, if possible. Plant the bulb in autumn or early spring, to a depth of five inches; then after it is up a foot or more mulch with two or three inches of fine peat or leaf mold. Other mulches may be substituted. I prefer the peat to anything else.

Autumn is considered the best season to set lilies, but I have had good success with spring planting. In fact I think spring the best for some. I never lost a bulb of *L. longiflorum* when set in spring, but have lost many with autumn planting. *L. auratum* does nicely among low shrubbery, where it gets the sun a part of the day and is sheltered from severe winds. It should not be placed very near trees or tall shrubs lest their roots rob the lilies of the fertility and moisture in the soil. Especially should maple trees

A CORNER IN THE GARDEN AT EGANDALE

be avoided, as they are great thieves in this way.

The white lilies, *L. candidum* and *L. longiflorum*, grow in any good light garden soil, and they are so cheap that one can afford to use them in sufficient numbers to make a fine display. Some years ago *L. candidum* was greatly troubled with mildew, but I believe it is not so prevalent of late years. The flowers of *L. candidum* come along during a shorter time and are less durable than those of *longiflorum*.

Of *L. speciosum* the varieties *album* and *rubrum* are the most common in cultivation. Others such as *roseum* and *Melpomene* are fine, and all bloom later than *auratum*. They like light sandy soil.

The *L. elegans* group is a fine one for general culture, and though preferring a light soil is not particular in its requirements. There are many varieties and synonyms to this lily, such as *umbellatum*, *Thunbergii* and *Batemaniæ*, which are somewhat confusing. Some are earlier in flowering and there is much variation in height, color of flower, etc. The variety *atrosanguineum* is a taller form with dark crimson flowers, and *incomparable* is a little lighter crimson with larger flowers. Other shades are orange yellow, as in the variety *venustum*. The variety Alice Wilson has canary yellow flowers having crimson dots on the lower half of the flower. This is still an expensive one, however. The bulbs of some of the forms of *elegans* are inclined to divide, and a single plant will in two or three years make a fine cluster.

Lilium Krameri, pale rose, has smaller flowers than most of the Japan lilies. It sometimes blooms but a single season in cultivation, but if only one flower could be had from each bulb planted it would then be well worth growing. It is one of the species that likes peat. Last year it bloomed with me and left stronger bulbs than were planted. Previously it has flowered but once.

In a light sandy or slaty soil I have had good success with the *L. concolor* and its variety *coridion*. Its height has been about 2 feet, bearing two or three deep crimson flowers two to three inches wide. The variety *coridion* has yellow flowers. This species multiplies freely, and should be taken up and separated once in two or three years, as the bulbs crowd each other after a time. I never could flower this lily in a heavy soil.

For moist situations where the drainage is poor our native *L. Canadense*, with its red and yellow varieties; *L. superbum*, *Lilium pardalinum* of the Pacific coast, *L. tenuifolium* of Siberia, as well as the tiger lily, can be used. Our *L. Canadense* is at home among shrubbery. It is also capable of attaining a large size in enriched soil. The variety *splendens* of the tiger lily is a grand plant when it attains its maximum size, fully twice as large with me as the common tiger lily. Among the newly introduced lilies the *L. Henryi* I believe is destined to take an important rank. It looks like a yellow flowered *speciosum*. It is a more vigorous plant with me than *speciosum*, not much if any larger, but will establish itself quicker, and bloom when a *speciosum* would scarcely show itself above ground. It has been recently introduced from China, and is still among the most expensive species. Its treatment need be only as simple as the commonest kinds, although I can't say as to how much frost it will stand.

Another very choice lily is the *L. Wallichianum* var. *superbum*, which comes from India. It has long tubular flowers, white shaded with chocolate outside, with white and primrose yellow within. It does fine in this climate, though I have not dared to leave the bulbs without protection from frost. I believe this species is destined to become quite common in cultivation in this country in the near future.

Lilium Grayi, a native of the mountains of South Carolina, is as yet but little known in cultivation. So far as I can see it is as easy to manage as any, and responds to cultivation as quickly as most of the commoner sorts. Though not as large as the *Canadense* or the Turk's cap it is still a fine plant, having one or more flowers of a dark reddish orange color spotted within. The flowers are somewhat like the meadow lily in shape, except that they do not turn back as in this, but are simply open bell shaped. In a heavy well drained loam, with a good application of manure on the surface, the bulbs of this lily trebled in size the first year. In a moist sandy soil with less drainage last season it did not thrive so well; it comes readily from seeds and should soon be as cheap as the common kinds.

Lilium Brownii, a fine species from the Corean archipelago, was first introduced into cultivation nearly a hundred years since. As it is still one of the more expensive kinds we may never expect to see the price very low. It is said to be quite hardy, yet here, without a covering, I seldom get it through the winter. It likes a light soil with a mixture of peat and good drainage. The one to three flowers are fragrant, about 5 inches long, white within and shaded with purple outside.

Lilium Leichtlini is a native of Japan, and has never been very common either in its native soil or in cultivation. I have had very good success with it here in a light sandy soil. It is one of those which a mulch of peat will greatly benefit in a dry season. Though not a very large species, its canary yellow flowers, spotted inside with purplish red, are handsome. I have had less trouble in growing this than with the *Brownii*.

L. Hansoni is the earliest lily to flower, it is a native of Japan and Siberia, grows three or four feet in height and has several orange yellow flowers three or four inches wide. The sepals are very thick. Though one of the more expensive kinds, it seems to thrive and multiply here as much as some of the commoner varieties of *elegans*. The imported bulbs, however, require a season to establish themselves before blooming. It never has appeared above ground with me the first year except once, when I obtained fresh bulbs from L. I. These had not long been

out of the ground, and they bloomed the first year.

Bulbs of all lilies when they can be obtained fresh from the nursery give quicker returns than can be had from imported stock. The thicker roots at the bottom of the bulbs, when kept fresh, are a great help to them at the start. These are seldom of any use on the imported bulbs. Either they are removed before they are packed or they dry up before reaching their destination. When bulbs are taken fresh from the nursery not only may most of the largest roots be retained, but if the journey is not too far nearly all of the roots may be saved, which is a great gain to the plant. When, by exposure to the atmosphere, the outer scales of lily bulbs become shriveled and shrunken, as they always do when allowed to dry, the injury to the bulb is much greater than would be supposed. It is on this account that what are often termed "store bulbs" require a year to recover before they regain sufficient strength to bloom.

Charlotte, Vt. F. H. Horsford.

AMPELOPSIS VEITCHII OR BOSTON IVY—CLEMATIS.

1. I am having trouble with it and cannot understand why six of them, planted in various parts of my large garden, are languishing in the manner they do. Can you explain it? As they were all purchased from one florist I incline to believe the originals were lacking in vitality, but they have had the very best care and attention, without results.

2. What is the best treatment and best exposure for *Clematis Jackmanni* and *C. Henryii?* G. W. P.

Tacoma, Wash.

1. The cause is probably local, so we cannot tell. But we think it should grow well with you. Good rich soil and a warm, sheltered, sunny exposure are what it likes in northern latitudes. It is often winter killed though, not so much the whole plant as its younger growths.

2. A southeast exposure. They like fresh, free, light, loamy soil, deeply and loosely worked. Bury the vines over winter, and unearth them in early spring, when they should be pruned in pretty hard. Mulch about their roots in summer.

A HARDY CACTUS.

Last summer in strolling one day on the mountain sides, which are all about my Port Jervis home, I found fine specimens of the *Opuntia Raffinesquii* growing in the shelving and loose rocks. There seemed to be no soil for the roots, nothing but stone. I managed to get a few specimens of the bloom—yellow petals, with a dark red center, quite a pretty flower. I believe this is about the farthest north this cactus is found growing. [It is quite hardy in our gardens and grows well in cultivation, in fact, it is not only a very much neglected plant, but a member of an undeservedly neglected race of plants. There are several distinct varieties of it, *Comanchica* being one of the finest. *Vulgaris* also does well in the garden, but our experience with these hardy opuntias is that *Missouriensis* makes the finest show.—Ed.]

Port Jervis, N. Y. E. G. Fowler.

The Tree Morning Glory.—W. F. M., Raleigh, N. C., writes to say that he had this plant from Mr. J. C. Vaughan of Chicago in 1889. He continues: "I grew the plant here two years, and have had a plant four feet high with over 500 flowers and buds on it at one time, but never succeeded in ripening any good seed. * I left the plant out to test its hardiness. It succumbed to a temperature of 18° above zero. * * If not put in too rich a soil makes a fine show of bloom. In rich soil the large foliage obscures the flowers."

Roses.

CLIMBING ROSES FOR NEW JERSEY.

A. B. C., South Orange, N. J., asks: "What are the best climbing roses to plant on a wall facing southeast, eighteen feet high and thirty feet long?"

Mr. John N May, Summit, N. J., answers: "If slight protection be given it in winter there is no more beautiful climbing rose than Reine Marie Henriette, with its crimson flowers; it is virtually a climbing Gen. Jacqueminot. If the new Crimson Rambler proves hardy it will certainly be an acquisition for just such a position, and there is every probability that it will be hardy. It is a vigorous grower, with bright glossy green leaves and large clusters of bloom. Blended with these a plant each of Baltimore Belle and Queen of the Prairie would make a charming effect. The soil in which they are to be planted should first be made very rich so as to encourage the plants to make good growth the first year. The strong shoots should be trained to cover as much of the wall as possible at about even distances apart, and the next season a full crop of flowers may be depended on. Unfortunately we have no climbing yellow rose hardy enough to recommend for the place."

In addition to those mentioned by Mr. May we would suggest the wild prairie rose (*Rosa setigera*), single flowered, in clusters, and blooming later than the double varieties. It climbs high, is perfectly hardy, and one of the loveliest roses known. The Dawson rose too, free growing, hardy as a rock, very free blooming, but only semi-double under or medium sized flowers might be admissible to help cover the lower part of the wall. The Japanese trailing rose (*Rosa Wichuraiana*) sends out its 20-foot long arms creeping over the ground, forming a dense, glossy, leafy mat which about the end of June or first of July is covered with panicles of small white flowers that are succeeded by crimson fruit, which is held on the plants all winter long. Even now (May 9) the Dosoris plants are full of last year's hips. To test it as a climbing rose we tied up the vines over an arch last summer, letting them hang down on the other side. Not only have they lived perfectly, but they seem perfectly happy and look very pretty. But the young growths will never go up of their own accord. Their nature is to creep flat along the ground, and if we want them to climb we have got to tie them up to their duty.

Landscape Gardening.

PLAN FOR GROUNDS OF TWENTY ACRES.

The accompanying plan is that of the grounds of Mr. Henry S. Turner, at Elsah, Illinois. These grounds are beautifully situated on a bluff five hundred feet above the Mississippi river, and about thirty miles from St. Louis. The grounds are comparatively level except for a steep declivity on the southern boundary, commencing on a line a few feet south of the house, and a valley commencing at path *a*, and extending beyond the north western boundary of the grounds. This valley is wooded north of the carriage drive which crosses it from *b* to *c*. The grounds slope gently to this valley from path *d* and from the road from *e* to *f*.

The steep declivity referred to above extends about three hundred feet south of the house to a sheer bluff above the river. The house is located to get the full benefit of the magnificent river and prairie view, which is only limited by the power of the eye. The pond was a natural one, the outlines of which have been changed. This pond was retained to provide a place to grow aquatics and bog plants.

The grounds are very elaborately planted with a large variety of trees, shrubs and herbaceous plants, and promise to become one of the most interesting and beautiful country places in the West. In addition to the ground shown by the plan, Mr. Turner owns several hundred acres adjoining which is devoted to a stock farm.

1, 1, 1. Woods.

2. Steep declivity planted principally with evergreens, but some open spaces left, in which wild roses and other native plants are naturalized.

3, 3, 3, 3, 3, 3, 3. Trees and shrubs.

3*a*, 3*a*. Shrubs.

4. Trees, principally deciduous but with a few groups of evergreens.

5, 5. Rhododendrons and coniferous evergreens.

6. Large evergreens.

7. Hemlock spruce.

8. White birch and hemlock spruce.

9. Bed of *Arundo Donax* and *Eulalia gracillima*.

10. Path from house to farm with flower border on both sides, planted with H. P. roses, herbaceous plants, spring flowering bulbs, summer blooming bulbs and annuals.

11. Summer house.

12. Pump house.

13. Ice-house.

14. Office.

15. Greenhouse.

16. Lodge.

17. Pond for aquatics with groups of shrubs and trees planted around it.

18. California privet hedge.

19. Lombardy poplars.

20. Grape arbor.

J. Wilkinson Elliott.

Pittsburg, Pa.

The Greenhouse.

QUESTIONS ABOUT GREENHOUSE PLANTS.

R. M. W., Ontario, writes: I would like to plant out in May or June, a few greenhouse plants, merely for the purpose of having good plants for next winter, and would be glad to know whether they should be exposed to full sunlight, and also whether they should be planted in their pots or in the open ground.

1. Begonias, *metallica*, Pres. Carnot, etc?.

Ans. Plant them out in a nicely prepared bed in partial shade, as under a lath shading, but not under the drip of trees. Lift and pot them next August or plunge them in a similarly shaded place out of doors over summer.

2. Toxicophlæa spectabilis?

Ans. We plunge it out of doors in summer, shading it faintly the first while but giving it full sunshine before fall.

3. Plumbago coccinea?

PLAN FOR GROUNDS OF TWENTY ACRES

Ans. It does well plunged out of doors in thin shade in summer. Take it in early.

4. JASMINES?

Ans. Weakly ones may be planted out in summer and lifted and repotted in August; or they may be kept in pots and plunged outside under a thin shade.

5. DALECHAMPIA ROEZLIANA?

Ans. Either plunged or planted out in summer in partial shade. But we regard it as a weed among tropical plants. When once it gets a fair footing in a warm greenhouse it self-sows itself on and under the benches.

6. PHYSIANTHUS ALBENS?

Ans. Plant it out in the full open sunshine; but if desired as a pot plant, better plunge it outside during the warm weather.

7. ARISTOLOCHIA ELEGANS?

Ans. Plant it out in a warm sunny spot. It will bloom freely after midsummer. If you want to lift it again in fall it would be better to keep over a few small ones in pots, than bother with the old ones. It seeds and seedlings come up in great numbers in New Orleans and some other southern gardens.

8. ALLAMANDA?

Ans. If in healthy condition and properly hardened off before planting, give it a warm, sunny, sheltered place, and a support to hold it up. But better keep it in a pot or tub and plunge it out of doors in summer, giving it lots to eat and drink.

9. TECOMA AMBOINENSIS?

Ans. Plunge it out of doors in a warm sunny place; tie up the vines.

10. STEPHANOTIS?

Ans. Plunge it (never plant it outside) out of doors in a warm, sheltered, faintly shaded place. And keep the vines trained around the trellis or to other supports.

11. IPOMŒA LEARI?

Ans. Plant it out in good ground, in a warm sunny spot. It will probably bloom all summer. Instead of lifting and potting a big plant of it in fall, lift a few of the rooted runners, pot them, and keep them in store over winter.

12. TECOMA STANS?

Ans. Repot it in spring. And in summer plunge it out of doors in a warm sunny spot.

13. MENZIESIA?

Ans. We presume you mean *M. polifolia* (Dabœcia). If so treat it as one would a hardy, or rather a Chinese or Japanese azalea, namely plant it out in summer, and lift and winter it in a cold frame. It isn't hardy with you.

14. CLERODENDRON BUNGEI?

Ans. Barely hardy with you; perfectly hardy here. It dies down to the ground most every year, but sprouts up again in early summer. Mulch the ground heavily in winter.

15. HYDRANGEA VESTITA?

Ans. It is a hardy outside shrub with us. Prune it in in spring.

16. HYPERICUM MOSERIANUM?

Ans. Treated as an outdoor hardy plant it survived last winter perfectly at Dosoris, that is while the tops were killed to the ground, a bunch of fresh shoots is

now issuing from the neck of every old plant.

17. Will 12, 13, 14, 15 and 16 stand a climate of 20° below zero without a thick covering of leaves?

Ans. Probably not with you, and even under such a mulching we question if 12 and 13 will prove hardy enough.

SUMMER TREATMENT OF WINTER FLOWERING GREENHOUSE PLANTS.

As soon as the weather has become settled and warm we empty our greenhouses of winter flowering plants and shrubs and plant out the majority of them in the "stock ground," that is, a piece of well enriched ground set apart for cultural purposes. The reasons for so doing are that it saves time and labor in watering, and the plants seem to enjoy it and give better results. As an illustration: Some years ago we could not get very satisfactory results from *Jasminum grandiflorum* by our treatment of it in keeping it in pots. We tried planting it out in the summer and lifting and potting it in the fall and were rewarded by a plentiful crop of its beautiful white, fragrant blossoms. Before planting it out we prune it back to within an inch of the young wood and reduce the "ball;" pinch it back occasionally, so as not to let it bloom till the first of August, not later, and lift and pot it the last of September, and keep it in a cool place till chrysanthemum time is over, when it will be more acceptable. This is a type of our mode of culture with many greenhouse plants, varied according to circumstances. The greater part of our cool greenhouses is occupied by chrysanthemums, and when they are done blooming and thrown out we must have something to take their place.

ORANGE TREES—except such as the Otaheite—we grow for their blossoms; so when we are planting them out in the ground we have no hesitation about cutting away their fruit, to prune them into shape, but do not cut severely. They need a rich soil and plenty of water during summer. When we lift them in the fall we put them into a reserve greenhouse till our show houses are empty.

We treat genistas, mahernias and abutilons in the same manner, except one year old plants, which do not lift well, these we keep in pots. We apply the same treatment to laurestinus, *Heterocentron roseum, Habrothamnus elegans, Cestrum Parquii, C. laurifolium* and *C. nocturnum, Sparmannia Africana* and *Statice arborescens.* One word about this latter plant: I lifted some plants of it last September and they were then in bloom; they continued blooming all the winter, and they are covered with their blue flowers of tissue paper-like texture at this date (May 9). This plant and abutilon "Golden Fleece" were in bloom the whole winter.

BOUGAINVILLEA GLABRA we prune quite severely when done blooming—sometimes we don't wait till it is done blooming, it lasts so long—plant it out and induce a vigorous growth; lift and pot it in the fall; stow it away in a cool house and keep it as dry as possible without actual shriveling. About ten weeks before you want it to bloom bring it into a warm house and water it liberally, giving it liquid manure twice a week. From plants treated this way you can cut growths three feet long, covered over with showy rose-crimson flower bracts by Easter.

BERRIED SOLANUMS sown January 1 we plant out in May—the dwarf varieties one foot apart, the large growing ones 18 inches each way. The varieties we grow are *S. capsicastrum* and *S. capsicastrum Hendersoni*, a dwarf, pointed, oval-shaped variety. Also *Solanum ciliatum*, a vigorous sort with scarlet fruit nearly as big as a medium sized tomato. It should be sown in March and must be grown in a pot to check its vigor. *Stevia serrata* and the white eupatorium we grow in pots from cuttings put in the bench April 1. Mr. John Farrell has grown stevia these last 30 years, and his method is as follows: Cuttings rooted in April and potted as required till put into their blooming pots, 8-inch size. They are placed on the garden walk, and not over watered, indeed he does not mind if they wilt sometimes, and they are pinched back till about the 10th of July, but not later, which point he thinks very important.

BOUVARDIAS from root cuttings put in the bench January are planted out in rows 18 inches apart and 12 inches in the row, and lifted and planted in the bench in the fall.

OUR CARNATIONS are rooted from cuttings taken from plants before they were forced, and they are planted out May 1 in ground that receives a liberal allowance of unleached wood ashes. We are very little troubled with rust, but copperdine is the remedy. For the "twitter" or thrips Mr. Farrell uses a tablespoonful of common salt in two gallons of water, and sprinkles it over the plants a few times, first cutting the infected tops off, and he also syringes them with tobacco water. He does not pinch the plants after August 1.

FLOWERING BEGONIAS are rooted in March and potted, then planted out the latter part of May in a partly shaded situation and pieces of apple twigs placed between them till August, when the sun is beginning to get weak, then the twigs are pulled up, and the plants are lifted and potted early in September. The varieties we grow are Nitida alba, Dr. Nachtigal, Rubra, Semperflorens rosea, Paul Bruant, Jessica or Robusta, President Carnot, Manicata aurea variegata (a superb variety), Argyrostigma, Argentea guttata and Olbia and Metallica, which require more shade. The Rex section of begonias we grow in a shady house all summer. *Begonia glaucophylla scandens* we grow indoors from cuttings rooted in May. We pot three in a 6-inch pot and suspend it from the rafters in winter. They have been admired by hundreds of visitors to Mr. Barr's place last spring. I wonder they are not more generally grown.

PARIS DAISIES, GERANIUMS, ETC. for winter flowering we root about the middle of July and grow on. *Rhyncospermum jasminoides* we keep in a pot in a partly shady place. Azaleas, camellias and heaths are potted about the first week in May, and any that do not need it get clean drainage and a layer of sphagnum moss over it, and all are placed on a bed of coal ashes, with salt hay placed between the pots. A lattice work is made of plasterer's laths nailed to a light framework 1½ inches, or about the width of a lath, apart. This admits sufficient light, but breaks the intensity of the sun's rays during the hot summer months. They are syringed every evening. We bring them into a cool greenhouse in the fall, and then into warmer ones as we require them for blooming.

WM. FITZWILLIAM.

Baronald, Orange, N. J., May 9, '95.

IN GARDENING I find endless practical hints. G. F. B.

Darien, Conn.

Orchids.

ORCHIDS.

If not already done no time should be lost in doing repairs to your orchid stock by cutting away any decayed bulbs and leaves. Should any of the leading growths overhang the sides of the pot or have grown so high up that the young roots are exposed it will be a good plan if the plant can be lifted out of the pot without material damage to its roots, to give it a size larger pot. Cut away the old and useless part of the plant and repot, keeping in view the preservation of the healthy roots. Be sure to supply ample and clean drainage and place a strong stake well down to the bottom of the pot, then tie the plants so that the new growths will have space within the rim of pots, and fill in with clean fern root as tightly as possible, so that the whole will be so firm that it cannot be disturbed by watering with the hand syringe or hose.

Cypripediums I find do best in clean sphagnum with plenty of clean drainage, and not over-potted. Keep the moss growing, water freely, shade moderately and give plenty of fresh air, but not a draught, and it is surprising how soon you have fine plants of this interesting genus.

In every collection there should be some of such fascinating orchids as *ionopsis, burlingtonia, broughtonia; angræcum, sophronites, dendrochilum*, etc., not so much for their delicate beauty as for comparison with some of the grander types, such as *Lælia purpurata, Cymbidium Lowianum* and cattleyas. There is also *Odontoglossum Rossi, Oncidium fonesianum, O. varicosum* and such like plants that are really a necessity to a lover of this family. With a fair amount of care and skillful handling they cannot fail to please the owner. Many of the Indian dendrobiums will now be pushing new growth, and should be encouraged by stronger heat and more moisture, as their growth proceeds, and once a week give them a dip or syringe of weak liquid manure water, it will induce a stronger growth and finer flowers. I find this treatment very good, especially for *D. formosum, D. crysatoxum* and such like strong growers. I intend giving the same treatment to some of the weaker kinds, and anticipate good results. But I would not advise using the liquid very strong, and would not use it until the roots are well advanced, say 2 or 3 inches long. In your warm orchid houses use plenty of tobacco stems on the pipes until you cease firing, then fumigate once a week to keep down thrips and aphides.

WM. MATHEWS.

The Fruit Garden.

THE JAPANESE WINEBERRY.

The accompanying illustration is engraved from a photograph taken by my son of a spray of the wineberry as grown here this year. And it is a fair sample of the fruit as grown on several acres at Floral Park beside me, where notwithstanding the severe dry weather during fruiting and picking time last summer the plants gave a very good yield of berries. For the first time these berries were shipped to the New York market, where they were well received and sold at from 8 to 10 cents per quart wholesale. As

JAPANESE WINEBERRY.

many as 12 to 15 crates a day were gathered, and the time of picking lasted between 3 and 4 weeks. A good deal of the berries was also sold to the villagers and farmers hereabout who are too neglgent to raise their own fruit.

I know of no more abused or praised fruit than this is, so it surely must be very fickle in its behavior. One person says the plant isn't hardy, another declares the fruit is worthless, while a third pronounces it perfectly hardy here, and its fruit of a most delicious quality. My own experience is that it is perfectly hardy here, and a good bearer of good berries, which when quite ripe have a pleasant but not high flavor; they are also of a beautiful color and very juicy, and have small seeds, and they keep well. The sale of the fruit through this neighborhood, as it became known, increased very much. The field when in full bearing was the most beautiful sight in the way of a crop of berries I ever saw. And I am going to increase my plantation.

P. S. I feel that this much abused fruit should have at least one friend to speak a good word for it; what I have written is my own personal experience.

NICHOLAS HALLOCK.

Queens, Long Island.

SPRAYING FRUIT TREES.—Now is the time to attend to this. It is an ugly, perplexing and disagreeable job for amateurs to undertake. They get muddled among the pumps and nozzles, and mixed up as regards fungicides and insecticides; and whi e all admit the advantages of spraying, very few are prepared to attend to the work themselves. But as they would gladly pay somebody else to do the spraying for them, it is our duty to stir up some one in every town to go into the spraying business as into the threshing machine business, and give him encouragement by employing him to do our work. With farmers, nurserymen and fruit growers for market spraying is a business necessity, and they take to it as a m tter of routine work. As most all of the State Agricultural Experiment Stations publish separate bulletins and calendars on this subject we would suggest that our readers apply to the station of their state for these bulletins. We have them from New York, Massachusetts, Michigan, Delaware, etc.

Insects.

A BAD SCALE INSECT ON CURRANT BUSHES.

H. A. B., St. Louis, writes: "Please find inclosed a piece of wood from one of my currant bushes. I find that several of my bushes are completely covered with scales. Please tell me what it is, and what to do for it, as I have never seen anything like it before."

The twig is almost covered with a scale insect, so small as to need a magnifying glass to see it to advantage. It is known as *Aspidiotus ancylus*, Putnam, and is nearly related to the San Jose scale, *Aspidiotus perniciosus*, Comstock, which is just at the present time exciting a great deal of interest and alarm in having been introduced lately into New Jersey and Long Island nurseries and widely distributed, thence we fear, through New York and other of the Atlantic states.

When currant bushes are so badly infested as the sample sent it would be better to cut them down and burn them On others less infested the young can be killed by spraying with a strong kerosene emulsion in early June, or at the time of the hatching of the young. The most favorable time for killing the insect is in the winter, when the plants are dormant, when they will bear a spraying of two pounds of whale oil soap in a gallon of water, with the result of leaving hardly a scale alive. J. A. LINTNER.

THE CURRANT APHIS.

I have been greatly troubled with a louse that swarms on the under side of the leaf of the red currant. The leaf on the upper side first looks black as if blistered, then dies, and the bushes are soon denuded of leaves. For the last two years have heavily mulched my red currants with tobacco stems, and not a louse has appeared. This may be an old remedy to you, but it is new to me. Have you a remedy for this kind of vermin? The difficulty is to get anything to stick on the under side of the leaf. C. W. F.

Oshkosh, Wis.

The insect infesting the leaves of the red currant is, in all probability, the currant aphis, *Myzus ribes* (Linn.). It is frequently common on the currant. Very little can be done for its destruction if left until it has found shelter within the curls of the leaves produced by its punctures. When it first emerges from the egg in early May it can be killed by spraying with a strong kerosene emulsion or whale-oil soap solution. I had not heard that the insect could be kept away by mulching with tobacco stems. Should this prove to be an effectual preventive it is a discovery of importance, for the tobacco at the same time will serve as a valuable fertilizer for the plant. Tobacco water has long been used for killing aphides that infest various plants, as well as tobacco fumigation. J. A. LINTNER.

Albany, N. Y.

LOOK OUT FOR BUGS.

In GARDENING, page 248, you say "be careful not to kill the lady bugs." Last year my roses were overrun with lady bugs and I killed them, thinking they were damaging the roses, in fact I kill every bug I can find on them. Now, was I right to do so, or should I have spared the lady bugs? B. W. V. W.

Poughkeepsie, N. Y.

You did wrong, very wrong. The lady bugs are among our best friends. They don't eat the plants at all, neither do they suck their juices. But they have voracious appetites, their food being the eggs of other insects, chiefly of noxious aphides.

When you write to any of the advertisers in this paper please say that you saw the advertisement in GARDENING.

GARDENING

WILLIAM FALCONER, Editor.

PUBLISHED THE 1ST AND 15TH OF EACH MONTH

— BY —

THE GARDENING COMPANY,

Monon Building, CHICAGO.

Subscription Price, $2.00 a Year—24 Numbers. Advertising rates on application.

Entered at Chicago postoffice as second-class matter.

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All communications relating to subscriptions, advertisements and other business matters should be addressed to The Gardening Company, Monon Building, Chicago, and all matters pertaining to the editorial department of the paper should be addressed to the Editor of GARDENING, Glen Cove, N. Y.

GARDENING is gotten up for its readers and in their interest, and it behooves you, one and all, to make it interesting. If it does not exactly suit your case, please write and tell us what you want. It is our desire to help you.

ASK ANY QUESTIONS you please about plants, flowers, fruits, vegetables or other practical gardening matters. We will take pleasure in answering them.

SEND US NOTES of your experience in gardening in any line; tell us of your successes that others may be enlightened and encouraged, and of your failures, perhaps we can help you.

SEND US PHOTOGRAPHS OR SKETCHES of your flowers, gardens, greenhouses, fruits, vegetables, or horticultural appliances that we may have them engraved for GARDENING.

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THE SIXTH ANNUAL REPORT of the Missouri Botanical Garden has just been received. It is a nicely bound volume 9½x6½ inches, 134 pages, and 56 page plates of botanical subjects, and several page pictures of views in the greenhouses or outdoor garden. The scientific papers contained in it are: Revision of the North American species of *Sagittaria* and *Lophotocarpus*, *Leitneria Floridana*; Studies in the dissemination and leaf reflexion of *Yucca aloifolia* and other species; Notes and observations on new and little known species; and Notes on the Mound Flora of Atchison County, Missouri. These Reports are welcome and interesting volumes that we are always glad to get, and Director Trelease deserves much credit for the original research and scientific information given in them.

TURNIPS.—Thin out those already sown to 2 to 4 inches apart in the row. And when it is time to hoe one sowing it is time to put in another. At this time of year we should sow a little and often if we are working for sweet solid juicy roots; when a little old they get bitter and foggy.

THE "DAUGHTREY" BEGONIA is spoken of in a southern contemporary as "quite an acquisition to any greenhouse or private collection," and we are told that "it has not yet been catalogued." Come, come now, the thing has been grown and catalogued for years under its proper name, that of Paul Bruant. We have them, from original sources, growing side by side.

OUT IN THE WOODS we now find any quantity of hepatica, adder's tongue, rue and common anemones, spring beauty, trilliums of several kinds, columbine, white, blue and yellow violets, star flowers, bellwort (*Uvularia*), bunch berry and other pretty little wild flowers. If these grow so nicely in the wood and add so great a charm to it we should try to naturalize them in our home grounds. All are very amenable to garden cultivation. If we have no wood to spread them into, a rockery or fernery in a slightly shaded spot would make an excellent home for them.

CHILD'S "RAIN-MAKER" NOZZLE is something that we hail with delight. The manufacturers sent us a couple for trial some weeks ago, and not only have we tried them, but our young men never do any hosing now without using them. They are strong, handsomely finished and made to fit a ¾-inch hose, or with a coupling, any other size. At the end running out from the hole is a spoon shaped blade that distributes the flow of water into an even broad spreading spray, and that too without in the least stopping the full flow of water or arresting it so as to lash the plants. It is clean to use, very handy, and being supplied with a leather or rubber washer, it doesn't leak a drop at the joint. We unqualifiedly recommend this nozzle as being the best thing of the kind we have ever used; it is just what we need, and now we have got it we use it daily, and cannot afford to be without it.

RUBBER HOSE V. IRON PIPE.—If a ¾-inch first quality rubber hose costs 15 or 16 cents a foot and galvanized iron 1-inch pipe costs 5½ or 6 cents a foot don't you think it is much better to lay more iron pipes for water about your place, and do less hauling about of the hose? Hoses wear out, but iron is practically imperishable. And how handy it is to have a water faucet here and there about your garden. With such a convenience you would likely do more and better gardening, and be better satisfied with the results, than when you are hampered by meagre facilities for watering. But don't fall into the mistake of putting in too small an iron pipe. If you run a ¾-inch hose you want an inch pipe; if you are apt to run two faucets at one time you want 1¼-inch pipe, which will cost 7½ to 9 cents a foot; if you want a large supply of water you may need a 1½ or 2-inch pipe, the last size costs only 12½ to 14 cents a foot, and even it is cheaper than a ¾ rubber hose. Get water and lots of it and enjoy life.

CARPET THE SHRUBBERY BED.—Many people in planting shrubberies wish to have the ground between the bushes hidden by a living green carpet of creeping vines or other plants. It is a tasteful and laudable ambition, and too a deterrant from too close planting of the shrubs. We have a good many nice plants suitable for this purpose. Among them are periwinkle or "myrtle" as we also call it (*Vinca minor*), it delights in such a place; Japanese honeysuckle, also well fitted, fast growing and almost evergreen there; the common European ivy, especially the vine-leaved variety, which hugs the ground as close as a carpet; hypericum (*H. calycinum*) which does well in the shade but isn't a fast traveler; Creeping Jenny or moneywort (*Lysimachia*) which does better under the shade of trees than under dense bushes; the creeping euonymus, which does fine near the edges; and the trailing Japan rose, *Rosa Wichuraiana*, which if planted near the outside will send its arms into the beds for thirty feet. Virginia creeper would also spread there, but it might get up into the bushes as well.

THE AMERICAN CHRYSANTHEMUM ANNUAL, 1895, by M. Barker, gardener at the Agricultural Experiment Station, Ithaca, N. Y., has come to hand. It is a book of 44 pages, 7½x10 inches, and bound in stiff paper covers. It contains a number of articles on chrysanthemums by different writers as well as notes by the author, also illustrations of Ezeta, J. H. Troy, Latest Fad, Miss M. M. Johnson, Mrs. Wm. H. Rand, Olympus, and Philadelphia varieties; likewise portraits of Thorpe, Lonsdale, Fewkes, Manda, Hatfield, Wood, Hill, May and Smith, men well known as associated with chrysanthemum growing. But the thing that would interest us most, namely, a full list of all the varieties in common cultivation to-day we cannot find; this omission, however, we hope the author will remedy in future issues. We would also suggest that an index be given. To make it a popular book it should be a ready reference book. We are glad to find that the genial and familiar face of John Thorpe is given the place of honor in front of the book. It was John Thorpe who gave chrysanthemum culture in America its popular boom.

BUYING DUTCH BULBS.

One of our readers writes. "I am about placing my order for bulbs and am anxious to get from only reliable growers. Can you give me any information about a certain firm (naming it) in Holland?"

We cannot. Now we buy a good many bulbs every year for forcing in winter and some for outdoors too. We have imported them directly from Holland, and also have purchased them from our home dealers, and we frankly admit that we can do better here than in Holland. When buying at home there is no such a thing as cheating us, for we won't deal with slippery people, and we have no ocean freights, brokerage, wharfage and other "ages" to pay, which are sure accompaniments of every Holland bill, neither have we "box and packing;" the dealer has all the bother and all the risk: our bulbs are the best, and the price is no greater than the Hollander wants. Some may ask how can that be, that the dealers here can sell as cheaply as the firms from which they buy would sell to us, and take risks, and still make a living profit? Because of the large quantity they buy they get bottom prices that we would not.

MOLES AND TRAPS.

CATCH THAT MOLE.—C. F. B., Conn., writes: 1. In GARDENING, May 1, you say "Catch that mole." This is just what I want to do—not that one but a hundred or so.

Ans. Get your traps—have two or three— you can set and attend them most as easily as one, and you make much quicker work of the moles, and be sure to

reset them every morning and afternoon every day till every mole is caught.

THE REDDICK MOLE TRAP.—Please say where I can obtain it. I do not see it advertised.

Ans. From the Michigan Wire Shovel Co., Niles, Mich. And when you write to them ask them to send you one of their meat-fork hand scarifiers. This little implement costs only a few cents and is one of the handiest things imaginable for stirring the surface of the ground in little flower beds.

3. Do moles eat the roots of any plants?

Ans. Not that we know of. They are often blamed for such things, but we believe unjustly.

4. MOLES AND PARSLEY.—During last summer I used fine curled parsley for a border. Late in the fall I thought it would do to put in boxes under the greenhouse bench for winter use, but I found every plant had been eaten off up to the very crown, only the top of the plants left lying loose on the soil. A flat of the same plants which had not been planted out and had stood all summer was put under the greenhouse bench about November 30. It staid there all winter. Late in March I heard, as I supposed, a rat or mouse gnawing in that quarter. The cat heard it too, and soon "pointed" at the flat. I quickly shoved the flat aside, just in time to see his moleship dodge back into his burrow. He soon re-appeared and puss caught him. On inspection I found that every drainage hole in the flat had been gnawed out large enough for a mole or small rat to pass through. Only a few plants were left in the flat—whether those missing had been eaten or not I cannot say. Here is the text, please give us the sermon.

Ans. Wasn't the culprit a short-tailed field mouse, and not a mole at all? Its work and how it did it betoken field mice These little rodents are particularly partial to parsley. And that is how they work, they run a burrow along the row under the leaves and cut the plants through at the neck or a little under it. They burrow under the walls and get into greenhouses in winter, and they are persistent pests in cold frames in cold weather, destroying everything. Moles don't gnaw holes in wood, but field mice do. And although cats will catch and kill field mice they don't care to eat them; on the other hand they don't care much even about catching moles. But terriers are eager for either.

The Vegetable Garden.

THE VEGETABLE GARDEN.

DO SOME THINKING; it will save a deal of unnecessary work. Make a note of what vegetables you need, how much, and when you wish to have them, and work accordingly. Now that planting and sowing are in order we are apt to overdo it, and fill up too much of our ground, leaving too little space for later crops. Forethought will avoid this. Parsnips, salsify, scorzonera, rhubarb, artichokes, Lima beans and asparagus are a full year's crop; that is they occupy the land till fall. But peas, beans, beets, corn, spinach, and the like are partial crops, that is the early crops will be gathered and off the ground in time for another crop. And as most all late crops like good ground we should see to it now and plan ahead for them. For instance the ground now occupied by transplanted onions, marrow peas, early corn, and strawberries, after being rid of these crops should be in good heart for celery; that occupied by seed onions, early cauliflower and early cabbage, should give us a good place for winter spinach and late turnips. Early potatoes will make room for beets and carrots with us, but further north this may be too late, and so on.

ASPARAGUS is good now. We cut it clean every morning, never letting a spear grow before well into June. It is very plentiful and cheap this spring, and the farmers (this is the most famous asparagus-growing district around New York) are complaining bitterly of the low prices.

ARTICHOKES.—Confine the Jerusalem ones to their hills, and cultivate between them to get a robust growth on them early in the season, and tubers earlier than usual. The globe artichokes are growing rankly, all we can do to them now is keep them clean, and cut the flower heads for use as soon as they are big enough.

SNAP BEANS.—Put in a fresh sowing once a fortnight in good ground in rows 2½ feet apart. We treat the dwarf Limas the same as we do snap beans except that we sow much thinner, and the large seeded ones in 3 feet apart rows, and one sowing, or at most two, lasts all summer. Get in the poles for the tall Limas, even if you don't sow the seed till the end of the month or first of June.

BEETS.—Just about the time that one sowing is up enough to need thinning is a good time to sow again. Sow a little at a time and frequently rather than a big patch and seldom. But after the first of July beets are not apt to get foggy, so we can put in a large sowing.

BRUSSELS SPROUTS.—If not already done sow a row at once.

CABBAGE.—About the end of the month sow the stock of winter varieties, say Flat Dutch, Drumhead, or other favorite, but if you intend them for family use sow the Savoy varieties, they are so much better tasted. For fall cabbage our gardeners usually sow between May 15 and 20; for winter cabbage, May 26 to June 10. Sometimes the first week of June is safe for us. Of course in localities farther north the time of sowing should be proportionately earlier.

CARROTS.—The early sowings are up nicely and should be hoed, thinned if necessary. Sow a few rows more, enough to keep you in a good supply from the end of June till the last of September. And about the last of June or first of July, whenever there comes a moist time sow enough to do all winter.

CAULIFLOWER.—Stir the ground well about those planted out. If they wilt in the warm sunshine they are probably infested with root maggots and are worthless, and may be thrown away. Sow some more. And if you have any plants to set out, do it in the cool of the evening, planting firmly, and give them a good watering at the same time. Of course in moist weather an artificial watering is unnecessary.

CARDOONS grow like globe artichokes. They need lots of room, say 4 by 5 feet between the hills. The heart leaves are the part eaten. They are tied up or earthed up to blanch as we do celery. At best it is a fancy vegetable and cultivated by few.

CELERY.—The seed should have been sown before now. But if it has missed, don't despair, sow again at once. From the moment the seed is sown till it germinates it must be kept moist and shaded from sunshine. If the seedlings have come up very thick don't let them spoil each other by over crowding, thin them considerably; those left will make very much better and stockier plants. Early celery that has been planted out should get all the water it can take, keep it on a continuous rush of growth.

CHARD or leaf beets is a vegetable relished by some, and a good deal grown, still there doesn't seem to be much demand for it. Treat it as you would beets, only give it a little more room, say sow it in rows 18 or 24 inches apart.

CHERVIL.—A little of it is very nice for flavoring. Sow a row a few feet long in some odd corner, but there is no need using up part of a large open space with it. We like the curled leaf better than the tuberous rooted.

CHIVES are full grown. Even if you cannot use them all keep them cut down anyway, else they'll get ripened, brown and tough.

CORN.—Sow some corn once a fortnight right up till the middle of July, and in sowing if you use two or three kinds, say Squantum, Country Gentleman, and Evergreen at the same time, a row or two of each, the succession will be much more satisfactory than if only one variety were used. The last two sowings should be of considerable extent. Hoe and stir the ground about the growing corn; thin the plants in the hill to about five if a small kind, or four if a strong one. We also disbud our corn, that is we pluck off the lower sucker sprouts so as to force the vigor into the main stems.

CRESS.—We don't care much for it as a summer vegetable; in winter and spring it is very welcome. The barbarea or upland or wild cress as it is called, a common weed by the road side, in any form, in view of the many good vegetables we now have, isn't worth growing. In fact we don't know who does grow it.

WATER CRESSES on the other hand are a very desirable and excellent relish, and very easy to grow. They love to grow in shallow running water, a brooklet may be broadened enough to make a big water cress patch. It doesn't like mud so much as a rich sandy or gravelly or sand covered bottom. About Glen Cove are several fine plantations of it, and a good deal of money is made selling the cresses. But a water spring isn't at all necessary to grow nice cresses in; we can raise them in a moist patch in the garden. Every little chip, if planted, will grow.

CUCUMBERS.—You can sow them in the open garden now. A few hills at a time are enough. On account of the cut worms, which are exceedingly voracious before the middle of June, and very fond of melons and cucumbers, we sow lots of both of these plants in pots in a cold frame, keeping them there till their first large leaves come on them, then they are a little too big for the cut worms and we can plant them out with moderate safety.

DANDELIONS.—If not already done, dig up and throw away all of the old roots. Thin the young plants in the rows so as to strengthen those that are left. If you have not sown some for next spring, do at once, and see that the ground is moist before sowing, for while the seeds germinate readily in early spring and fall (when not too late) it does not grow easily in summer.

EGG PLANTS.—This is one of the vegetables we should not plant out before the weather is settled and warm, that is before the oak trees and the hickories are in leaf. Keep them in pots or boxes in sheltered places till then. While they like good rich ground we find they do fairly well in light soil if it is rich.

GARLIC is a very strong flavored member of the onion family, and sometimes a

few cloves of it are asked for for flavoring certain dishes. We plant a row a yard or two long of it early in April, dividing the bulbs into as many cloves or sets as they will make, and planting them in the row two to three inches deep and two to three inches apart, in light soil. They are ripe for gathering and storing about the same time as sets onions are ripe.

HORSE RADISH.—That which was left undug from last year will be running to flower; cut off these stalks. Use this old radish first. This year's setting is coming up nicely. Keep it clean. Had we wanted to we could have had lettuces, radish, spinach, or cabbage plants from seed from between the intervening rows before the horse radish plants would be up enough to choke them If you have any dug up roots left over from winter, keep them cool, and covered with moist earth, and rub off any sprouts that may grow on them, as they lessen the pungency of the radish.

KALE needn't be touched before next month.

KOHL RABI.—In sowing and planting treat as you would summer cabbage, only plant closer, say 18 inches by 2 feet and use it as soon as the "bulbs" are as big as a goose egg.

LEEKS.—Sow a row a yard or two long as soon as possible, and when the plants are large enough for it, transplant them singly into rows as one would onions, only the rows should be in deep furrows as if drawn for peas or beans, and 18 inches apart.

LETTUCES.—Scatter a few seeds in any empty bit of ground you may have. As soon as the seedlings are big enough you may lift and transplant them elsewhere 12 to 15 inches apart; or thin them out enough where they were sown to let them remain there for hearting. Indeed it is a good plan in summer, instead of sowing in one place and transplanting to another, to sow thin and then thin out the plants to a foot apart, letting them stay there to mature. Lettuces like heavy, moist, rich ground in summer; in light soils they "bolt" very quick. If you grow Cos lettuce, when it is three-quarter grown tie a string loosely around its middle to hold the leaves together and bleach the heart, a light rubber band is excellent for this purpose.

MARJORUM.—We sow a row—as far as a common seed packet goes—of both the annual and pot marjorum each year for "herbs," but it is with marjorum as it is with dandelions, we must sow early, for it doesn't start kindly in hot summer weather.

MARTYNIA or Unicorn plant is grown for its young seed pods, which are made into pickles It is a big, coarse broad spreading plant, and three or four of them are ample for an ordinary demand. It is easily raised from seed and easily grown. But it is a vegetable so little called for that seeds are not always as fresh as they ought to be.

MELONS.—Musk melons like good soil and with us so do water melons, but the latter will thrive in light soils too. They may now be sown in hills, the musk in rows 6 feet apart, and rows 4 to 5 feet asunder in the rows; water melons one-third further apart. As regards the cut worms take the same precautions as mentioned for cucumbers.

MINT spreads so that we have to cut it close into line every spring. If it shows any lack of vigor plant a new row in ground other than that occupied by mint before.

MUSHROOMS.—The cultivation of the new mushroom in frames, buildings or out of doors is now in order. But remember it will take maggots just the same as the old mushroom, only as it grows so quick the mushrooms are gathered before the maggots get big enough to be seen. As regards common mushrooms clean out all old beds, their bearing season is practically over for a time. Now is the time to plant spawn in the fields or lawn if you wish to try to cultivate open air mushrooms.

MUSTARD is appreciated in winter and early spring; but as we have so many other things we don't care so much for it now. At the same time it is an excellent relish at any time of the year, and very easily grown from seed.

NASTURTIUMS.—If you want these for pickles, grow them for their showy flowers; they will yield both blossoms and pickles.

OKRA.—Sow it now, either thin in a row or in 2 feet apart hills, and two or three plants in a hill. But don't sow it all at once, make three sowings of it during summer, if you want to have an unbroken supply of young pods.

ONIONS.—As soon as the seedlings are up run the hoe between the rows no matter if there are no weeds there; you want to break the surface of the ground and mellow it. Rush the onions all you can so as to get some size on them before the summer drouth sets in and they become infested with yellow thrips.

ORACH is something like spinach and grown much in the same way, but it isn't as good.

PARSLEY.—The spring sowing should be up now. Hoe the ground on either side of the row to encourage growth. As the old parsley will soon run up to flower try to get this year's sowings into good leaf as soon as possible. Then root out and throw away the old.

PEAS.—Sow nothing but marrow peas now. In the field we sow them in single rows 2½ to 3 feet apart, and don't brush or otherwise support them, in the garden we sow them in double rows with 3 to 5 feet wide intervening spaces between them, and we brush or net these peas. In the middle of the space between the rows we sow spinach or radish or plant lettuces. Don't sow late varieties for latest peas. What is meant by late peas is the ones that take a longer time than others before bearing pods fit for use. Intermediate varieties of medium growth are good enough for all purposes.

PARSNIPS, SALSIFY, SCORZONERA. — If you haven't sown these, sow at once. Or if you haven't enough of them put in, you are in time yet to add to your stock.

PEPPERS, like egg plants, gain nothing by early planting. Harden them off well and plant about the end of the month.

POTATOES may yet be planted, but it is getting late for them. We have harrowed down the rows of ours, and now the sprouts are beginning to peep above ground. If you have only a small patch a common wooden hay rake drawn over the rows unfastens the surface soil and pulls all clods of earth off them, allowing the young shoots easy egress.

RADISHES take from 20 to 25 days between sowing and using, and they don't last many days in usable condition, hence we shouldn't use a good open space for them if we can get an opening between other crops, and we shouldn't sow much at a time. Better sprinkle a few seeds on the ground and rake and tamp them in once a week, or sow a short row.

RHUBARB is now at its best, and running to flower. Root out all the poor, green slender stalked crowns, and keep only the big thick, red stemmed ones. And break off all the flower stems as soon as you can get a good hold of them. If you sowed some seed this spring thin out the seedlings to six inches or more apart to get good crowns for transplanting later on.

SAGE.—Old plants lived over winter very well. We cut them down a good deal in spring so as to get fresh green growth for summer. It is also easily raised from seed.

SEA KALE, so popular in Europe and one of the leading market garden winter crops there, is seldom used here. Sow some seed now, and early next spring

[CONTINUED ON PAGE 268.]

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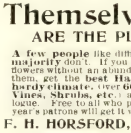

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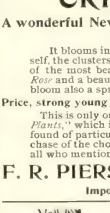

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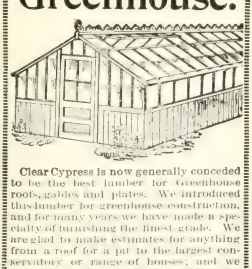

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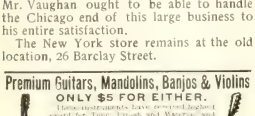
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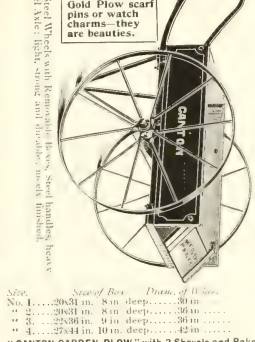

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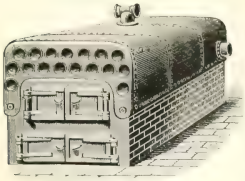

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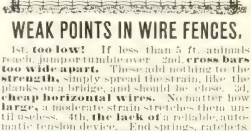

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GARDENING

Vol. III. $2.00 A YEAR. 24 NUMBERS. CHICAGO, JUNE 1, 1895. SINGLE COPY 10 CENTS. No. 66.

DOUBLE-FLOWERED APPLE TREE

Trees and Shrubs.

DOUBLE-FLOWERED APPLE TREES.

There are several of these at Dosoris, and when they are in bloom (they were at best, from May 15th to 20th, this year) they are exceedingly full and white. Our illustration, engraved from a photograph taken here last year, shows a little tree about 11 feet high. The flowers are white, showy, and in close, short-stemmed bunches, and they last in good condition much longer than do single ones. After the flowers come an immense crop of small apples about 2 inches in diameter that hang in ropes on the branchlets and which are quite ornamental. Economically, however, they are of no consequence, for they are rather sweetish or tasteless or insipid. Cows and horses are very fond of them though, and promptly eat up every fallen fruit. In color they are yellowish with a warm red cheek. Blooming at the same time, we also have very beautiful double-flowered pale rose-colored sorts. But there is great confusion in their nomenclature. They are sold in nurseries under the names *Pyrus spectabilis*, and *P. Malus spectabilis*.

These double-flowered apple trees are now (May 24) some days past their best, but *P. coronaria*, our wild crab apple, has just opened to its best. It is the latest and most fragrant of our apple trees, and although only a native crab, as an ornamental flowering tree we have nothing of its season that is more beautiful.

The Japanese crab or Toringo apple-tree that we illustrated in last issue is still in bloom, but some days past its best.

Other trees now in bloom comprise *Magnolia Fraseri*, yellowish white; *M. cordata*, yellow; *M. acuminata*, white; *M. hypoleuca*, white, very fragrant, and scattering flowers on the hybrid-Chinese and Japanese sorts. The snowdrop tree, *Halesia tetraptera*, is at its finest and dropping, and the fleecy panicles of the flowering ash (*Fraxinus Ornus*) are about white and spreading fragrance for rods around. Lilacs are in their heyday, bush honeysuckles are full, American and

Japanese snowballs turning white, beach plums about over; azaleas in many colors approaching best, and a few rhododendrons open.

HEDGE OF HYDRANGEA PANICULATA GRANDIFLORA.

I have one on my place planted fifteen years ago. From my standpoint almost any flowering shrub would be better. I have a hedge, *Spiræa Thunbergii*, which is pleasing at all seasons of the year. *Rosa rugosa* does not prove desirable. For a low growing hedge *Berberis Thunbergii* is a glory.

EXOCHORDA GRANDIFLORA.—Why does it have such unstinted praise? I have one nearly fifteen feet high. At the present time a mass of bloom, good to look at certainly, but after the bloom has passed I can't see that it has anything to its credit. Will it stand close pruning? [When in full bloom it is lovely, when out of flower, thin and scraggy. Much of this objection is due to neglect of the plant in its early years, we are so apt to strive after height rather than fullness to the ground, that we let the plants grow too tall. Take a young plant and cut its head off, and every year after keep down its head till it makes a full well-proportioned body from the ground up and holds it. In the illustrations of the shrubs at Dosoris this is one of the main points we wish to show, namely full-bodied specimens, the result of early training.—ED.]

FIENDISH WEATHER.—Ten days ago it was hot. Frost almost every night last week, our strawberries are badly injured and corn, potatoes and beans killed.

Amherst, Mass., May 19, 1895. H. H.

TREES AND SHRUBS.

THE DEAD WOOD is now very visible in both evergreen and deciduous trees and shrubs, and unfortunately there is a good deal of it. Leaving it there gives the plants a neglected and seedy appearance, and reflects very little credit on their owners. First saw off all the dead branches close in to the living limbs or trunk, smoothen the wound with a shaving iron and paint it with good linseed oil paint. Cut out all the smaller twigs or branches that are dead, with a hand shears or parrot-bill shears, cutting close in to the branch or back to a living joint. In cutting out dead wood you will find, especially in shrubs and vines, considerable wood that isn't quite dead, but is sprouting weakly; if you can spare this half dead stuff, cut it out unreservedly. If the roots are all right, vigorous shoots and healthy branches enough will soon be rushed out to more than compensate for the sickly twigs and branches removed. Better cut a shrub right down to the ground and have it come up strong and healthy again than try to coax its half dead body into renewed life.

PRUNING TREES.—If you neglected to prune your trees into handsome plants before this, don't hesitate to do it now, for clean cuts made now heal over better than do wounds made in winter. And there is no danger of "bleeding" much, the demand of the green new foliage being too great to allow of much spare sap running to waste.

PRUNING SHRUBS.—Aside from cutting out dead wood, thinning the shoots where they are very thick and cutting in any very erratic branches that if left would give an ill form to the shrub, spring blooming shrubs should be pruned in spring as soon as their flowers have faded or fallen. Cut forsythias pretty well back to give the lower eyes a chance to push orth into stout, sound, well ripened wood before fall. Don't let lilacs run up to be tall, thin bodied bushes; head them in at the top so as to give them more side branches and stockier form. As soon as the earlier spiræas are over thin out the shoots that have blossomed, and cut back most of those left to sound young sprouts or eyes to get nicely shaped specimens. *S. prunifolia*, *S. trilobata*, *S. Cantonensis* and the like should be treated in this way, but as *Thunbergii* is of different habit it should not be cut in as much as the others. We shorten in the Japan quince a little to keep it shapely, the same with exochorda and rose acacia. When small deutzias (*gracilis*) have done blooming cut back most of the old sprays to give the young shoots a better chance for next spring's flowers. Big deutzias (*crenata*) and mock oranges (*Philadelphus*) should be somewhat shortened after blooming, and as soon as the African tamarix is over all of its wood should be cut back to the two year old wood. As it blossoms on the one year old wood this gives the young shoots time enough to mature before the winter sets in.

LOOK TO THE EVERGREENS.—Most all yews of the English or *baccata* class, as the plain English, erect, Irish and Dovestone's all suffered more or less during winter, and may now need to be cut well in, as one would a hedge, to cause them to break back into new wood. Retinosporas suffered considerably, and show a deal of dead wood inside; cut most of it out and let in the air. In spruces, firs and pines endeavor to preserve a straight, stiff stem or leader, but don't let it grow away at will. If it is apt to run too long, don't hesitate to cut it off half way down. It is by timely attention to the leaders in this way that the Dosoris specimens are so abundantly branched from flat on the ground up. If you let the leader run up as it pleases it is apt to add to the tree's stature more than to its fullness at the ground, and thus court the very evil that has driven the balsam fir from our gardens, namely, naked stems. Indeed it is questionable if *Abies Veitchii*, *A. Ajanensis*, *A. firma* and *A. brachyphylla* are much better than our native balsam in this respect. In the case of firs and spruces, have an eye to symmetry, and this can be easily encouraged, if at this season of the year, when the new growths are so young and tender, we break off the end growths of the branches, which is easily done with a snip of the finger; if we leave it undone for another month we shall have to use a knife or shears to cut out what we now can rub off with the finger. In evergreens cared for in this way every now and again a branch may turn up at the end and stiffen as a leader; cut this upstart point right out.

STAKING YOUNG TREES.—If a young tree is unusually tall, slender stemmed, top heavy or poorly rooted and needs support give it a stout, neat stake at once. Don't use hard cord or wire in tying or tie dead tight, but use stout soft cord, as marline or plasterer's cord, or hay rope, and if the tree is apt to be swayed by the wind have a pad between the ligature and the cord; a piece of burlap is good for this, but we like old rubber hose better. We cut an old hose into pieces a few inches long, pass the string through one of these, then with a neat wad of burlap between the stem and the stake, and the rubber hose between the ligature and the stem, the cord cannot cut into the wood, and there is little danger of the tying being too tight for a year or two. Newly planted shade or lawn trees of somewhat large size should be supported by a stout stake, or by a stake to the tree, and guys of two or three stout cords from pretty high up on the tree to pegs out in the ground some feet away from the bole. In this instance have a good bunch of hay or burlap around the tree and between it and the guy ropes.

KEEP THE GROUND MOIST.—It is poor policy to plant trees and then let them starve to death in summer. After the plants have got well rooted and established they can take care of themselves, but for newly planted ones we should make provision for keeping the ground moist and cool about their roots in summer. We cut out a circle 3 to 4 feet in diameter around them, having it a little lower than the sod of the lawn, and fill this full up or more with mulching. When the drouth comes we can fill in the water here, and it won't run away as it would surely do on bare dry ground; it enters readily through the mulch and into the open ground, and the mulch saves the ground from drying out quickly, and prevents it baking and cracking, and breaking the fibrous roots. These circles around the young trees, and especially evergreens, when they are kept a few inches wider than the spread of the branches on the ground, are a safeguard against accidental or careless work in running the mowing machine up against the stems of the trees, notching them at the collar, or against the evergreen branches, shearing off their tips and disfiguring and impairing them.

TREES AND SHRUBS IN BLOOM AT ROCHESTER, N. Y., MAY 20.

The spring has been unfavorable for flowers on trees and shrubs. After the protracted cold of early spring, a remarkably hot spell of weather set in on the 2nd inst., with the temperature verging on the nineties, and continued until the 11th, when there came a severe hail storm that smashed large quantities of glass in greenhouses, riddled the leaves on the trees and shrubs, and sadly disfigured flowers, followed by frosts on the nights of the 12th, 13th and 14th, and chilling cold winds up to this time.

During the past four or five days the lilacs have been in fine flower. Amongst some of the most showy varieties are the following: Jacques Calot, has immense clusters, the individual flowers are larger than those of any other variety we have, and of a pink lilac color; Ludwig Spæth, a beautiful variety with long bunches of large purple red flowers, it is one of the best of the dark varieties. Louis Van Houtte has large reddish clusters. Azurea plena is another early flowering variety with bluish tinted flowers in compact clusters. President Massart is a splendid variety; the clusters before they are open have a distinctly dark-red appearance, when open the flowers are dark purple. President Grevy is superb; the panicles are immense, and the individual flowers large, and of a bluish or light purple shade. Verschaffeltii has dark and purple panicles; Ville de Troyes dark purple flowers; Prof. E. Stuckhardt pink purple flowers and large clusters; Gloire de Moulins, large pink lilac, very fragrant clusters; Cerulea superba is beautiful and has clear blue trusses, Beranger has reddish purple flowers. Charlemburg pink purple ones in somewhat dense panicles, Croix de Brahy, pinkish red, Prince of Wales, dark lilac, with the petals showing a somewhat striped appearance, and Councilor Heyder a handsome variety with red buds, which when open show whitish blue flowers.

MARGARET DICKSON ROSE.

Some of the best varieties, as Marie Legraye, Frau Dammann, and Lemoinei fl. pl., were moved last fall, we cannot say anything about them at this time. [The two first named are the finest white lilacs we have, but the last named although it has large panicles of bloom has a bluish purple hue that acts against its popularity. Ed.] The Persian lilac is past its best.

Some of the bush honeysuckles have been in full flower for four or five days. These include such varieties of the Tartarian as *alba*, *alba rosea*, *pulcherrima*, *ruberrima*, *rubra* and *splendens*. *L. bella* in several varieties is more showy and free-flowering than the Tartarian type; its variety *albida* is to-day loaded with flowers. The fly honeysuckle (*L. Xylosteum*) of spreading habit, and having cream-colored flowers, is now pretty well past, *C. chrysantha* has pretty yellowish white flowers. *L. Ruprechtiana* in several varieties, and all vigorous in growth, have white and rose-tinted flowers now at their best. *L. Etrusca*, a twining shrub, has yellowish purple flowers, just opening, and *L. sempervirens* is also coming into bloom.

Viburnum Lantana is about past, but the common snowball *V. Opulis sterilis* is is beginning to turn white.

Exochorda grandiflora has been lovely for the past six days but is now beginning to fade. *Kerria Japonica* is about past its best, but *Rhodotypes Kerrioides* s still in good form. *Spiræa rupestris* has small clusters of flowers, white, and *S. Cantonensis* and *S Van Houttei* are opening. *S. hypericifolia*, *S. media*, *S. prunifolia* are all past flowering.

The scorpion senna (*Coronilla Emerus*) is full of pretty yellow pea flowers. This shrub requires protection in winter. *Cytisus purpureus*, a low growing shrub, has been covered with its pretty purplish flowers for a week, and *C. elongatus*, yellowish white, has been in beauty four or five days. *Caragana frutescens* is about past, the Siberian pea tree (*C. arborescens*) is now in bloom, and *C. pygmæa* has a great profusion, of dark yellow blossoms. The rose acacia (*Robinia hispida*) is opening its rose tinted blooms.

Calycanthus floridus (the sweet scented shrub) is opening its chocolate colored flowers, *C. glaucus* is very much like the former but its leaves are whitish underneath and perhaps its blossoms are more fragrant. *C. Occidentalis* gets killed to the snow line every winter so that it never flowers here. But *Euonymus angustifolius*, *E. verrucosus*, and *E. obovatus* are in flower, but in this line inconspicuous.

Some of the barberries are real pretty just now. *B. microphylla serrata* has gracefully arching branches completely covered on the under side with dense clusters of bright yellow flowers. The Cretan barberry (*B. Cretica*) is displaying its pretty yellow racemes. *B. sanguincolenta*, *B. Canadensis* and *virgata* and *B. dulcis* are also bursting into beauty. In winter we always set a box over the last named species as it is not hardy. *B. stenophylla* under a barrel filled with leaves has been killed back a little, but it is growing strongly now.

The common dogwood (*Cornus florida*) is rather a failure hereabout this spring, so far as I have seen. *Cornus stolonifera* and *C. alba* are both in flower.

Rosa alpina is the first rose to flower here, and opened a few blossoms to-day. *Cotoneaster reflexa* is in bloom and *nigra* opening. *Cratægus coccinea* has been in flower since a few days, but *C. tomentosa* is hardly open yet.

Daphne cneorum has been real pretty for the past two or three weeks, and *D. alpina* is just opening its small-white flowers. The latter does fairly well here with a good mulching of leaves around it in winter. *Rhamnus Frangula* and *R. alnifolius* were in bloom last week.

JOHN DUNBAR.

PURPLE BEECH—PRUNUS PISSARDII.

C. T., Milwaukee, Wis., writes: 1. Is purple-leaved beech hardy in Milwaukee, on the west side of a house? I should also like to know if the beech is easily transplanted. In my opinion the climate here is too rough and changeable for the purple leaved beeches.

2. Two years ago I planted two trees of *Prunus Pissardii* on the west side of my house, and they seemed to do well. But now I notice that during last winter they have almost been killed, so it seems to me that this tree is not reliable enough to be recommended for this city. What do you say?

---

1. We have transplanted many beeches, both wild and cultivated and with good success, at the same time we regard the beech as a somewhat difficult tree to transplant. As regards the hardiness of the beech and plum Mr. A. Salisbury, president of the State Normal School in your state kindly replies as follows:

"*Prunus Pissardii* stands the winter here and certainly will in Milwaukee. Purple beech has not been a success here. Indeed, we have great difficulty in establishing the white beech. But the case is different at Milwaukee, where the climate is affected by Lake Michigan. The purple beech will probably stand the winters there if the transplanting process is got through with successfully. But the purple birch is more certain to give satisfaction."

Roses.

MARGARET DICKSON ROSE.

This is a comparatively new hybrid remontant rose of sterling merit. We have grown it at Dosoris for four years and find it to be a strong healthy bush, with the most beautiful large white waxy petalled flower tinged with flesh color in the middle. The flower stems are stout and leafy up to the blossoms like a Malmaison, and the foliage is healthy. But we have not found it to be a free bloomer. For the use of our illustration we are indebted to the courtesy of Messrs. Ellwanger & Barry of Rochester, N. Y. They speak as follows about this beautiful rose: "We have had this superb rose growing in our nurseries for several seasons, and from what we have seen of it, there seems to be no doubt that it will be the coming white hardy rose. Of magnificent form, white with pale flesh center,

petals very large, shell shaped and of great substance; fragrant, foliage very large, dark green, a strong, vigorous grower."

The Flower Garden.

THE FLOWER GARDEN.

By this time most bedding plants will have been set out, and annuals sown and perennials planted. Keeping the garden clean and neat, staking and tying the plants, and watering them in dry weather are now in order. But we mustn't lose sight of the fact that many annuals soon pass away, and leave empty places behind them that should be filled up with something else, perennials also grow up and bloom and in due time have to be cut down, leaving more vacant room, and now is the time to prepare for this. In a nice, moistish piece of ground, sheltered from the sweep of the wind, and where you can shade it if necessary with a lath or brush shade or covering of excelsior, prepare a bit of ground for a seed bed. Mark it off into rows six inches or so apart, and here sow China asters, zinnias, French marigolds, cosmos, coreopsis, nasturtiums, sweet alyssum, balsams, candytuft, petunias, scarlet salvia, zanzibar balsam (*Impatiens Sultani*), dwarf sunflower, centranthus, dwarf convolvulus, pot marigolds and the like. All of these grow well from seed and are easily transplanted, and raised now they will bloom well in late summer and fall. Don't let them crowd each other in the seed rows, thin them out a little to make them stocky, and if you cannot use them as soon as they are ready transplant them into close rows in another bed, there to await a convenient time and place to plant them in. It is also well to have a store of such plants as Lindheimer's gaura, heliotrope, lemon verbena, scented leaved geraniums, begonias, cannas, single dahlias, and the like to fill up gaps when they occur.

Coreopsis, eschscholtzia, candytuft, mignonette, alyssum, and several others may also be sown in rows or patches where they are intended to bloom. In warm, dry weather though it often is a difficult matter to get them to germinate well. Before sowing, thoroughly soak the ground with water, leave it a night, then next day dig it over and fine, then sow the seeds and lay a board over the row, tilted up a little, or spread some excelsior over it to shade it and keep it moist till the seeds grow.

STAKING is a necessary evil, but in the case of delphiniums, hollyhocks, dahlias, sunflowers and other tall or topheavy plants that are apt to be broken by storms of wind or rain, stakes should be used. Don't wait till the plants break down before you give them the stakes, but apply the supports early and let the plants grow up to them. Stakes should be stout enough to support the plants, neat and straight, and when inserted only about two-thirds or three-fourths as high as the plants. In staking a hollyhock if the stake comes up to about where the blossoms begin, or if in an exposed place to half the height of the flower spike, that is enough. In staking try to hide both the stake and the string, for both are an eyesore. Some little plants need stakes as well as big ones, for instance upright veronicas that grow in bunches, and *Gypsophila paniculata*; if not staked they spread apart in the middle. The way to stake them is to insert four or five short stakes close around the clump, then run a piece of stout string around the stakes encircling the plant. The same thing is done with herbaceous pæonies to keep the heavy blooms up off of the ground, and tomatoes to keep their fruits above the grit, only in these last two instances a wooden hoop as of an old keg or barrel instead of string is tied up to the stakes, the plants coming up inside and drooping over on the outside.

For stakes we use dogwood, alder, birch, or saplings of most any sort cut in the woods in winter, anything will last a year, and many will be good for two or more seasons. For small and slender plants tamarix prunings are the best things we have, but as people who don't grow this shrub must use something else we may say that most any slender, straight, hard-wooded sprouts they may get in the woods are good enough.

THE PÆONIES WON'T BLOOM.

K. R. W., Wellston, Ohio, asks: "What is wrong with pæonies when they refuse to bloom? I have had quantities of them for years, and several varieties. None of the pink ones have bloomed for five or six years. During that time they have all been moved and divided twice. After moving them they were left two years or three in their places, but failing to bloom the second year, they were again moved the following fall. Each time they were good large clumps when planted. Last fall I moved them, all that I had and now have a few buds on the white variety only, but no red or pink buds. Formerly I had an abundance of bloom in all."

The trouble is probably local, and we cannot tell what it is. How about drouth in the summer? Pæonies love good, rich, deep soil, well drained but holding moisture well in summer, and while they enjoy an open place in the garden they love shelter from wind. Although they are perfectly hardy a mulching of leaves or litter over their crowns in winter does them good. They grow fast in spring and bloom early—here between the middle of May and about the 20th of June—and we make it a point to keep them in good leaf and growth as long in the summer as possible to lay the foundation of good crowns and lots of bloom next year. Don't plant them where the roots of big trees can rob them.

THE RUSSIAN VIOLET enquired about, page 228, is a really remarkable plant. It blooms with me in the open ground all winter without protection of any kind. When slightly covered the blooms are longer stemmed and more perfect, but from plants not covered I have picked flowers every month of the past winter when there was no other trace of plant life in the garden. I have never seen this remarkable winter blooming violet properly commented on in print, and for that reason doubt it the species I have is generally known. [No, it is not. Commercial florists don't have it, so far as we know, hence the public have no ready means of obtaining it. A year or two ago Mrs. Chrisman of Virginia, one of our readers, kindly sent us plants of it.—ED.]

New Jersey. F. P. W.

The Greenhouse.

SOME WINTER FLOWERING PLANTS.

Freesias, lachenalias, ixias, etc., when done blooming, are allowed to ripen off. We keep them in their pots in a cool, dry place till September, when they are repotted; but those not wanted early are kept dry till the cool weather comes, so as not to start them into growth. We separate the bulbs of the freesias, planting six of the larger ones in a 5-inch pot; the smaller ones are planted in flats, giving some blooms and making large bulbs for next year. We bring them into the greenhouse from the frames successively. The freesia is one of our most important winter flowering plants.

CALLAS.—We grow them in pots and let them rest from the middle of May till middle of August, when we shake them out of the old soil and pot them into 6-inch pots; and about the middle of October shift them into 8-inch ones. Water them liberally with liquid manure all the winter. We get plenty of blooms from them all the winter and up to the middle of May.

CYCLAMEN.—For the amateur who does not grow these in quantity, two-year old plants will give better results than younger ones. We had some two-year old plants last winter in 5-inch pots, with 30 and 37 blooms open on them at the same time. Plunge the pots in a shady place during the summer, giving no water, only such as they receive from the rain. In September repot them, shaking off the old soil and using the same sized pots; plunge them in some light material such as leaf mould, in a frame, keeping the sash on, and allowing very little ventilation, and shade them during the hot part of the day. Put the leaf mould well up around and in the pots, only leaving the crown of the corm or "bulb" exposed; this is to "soften the bulb." Early in October bring them into their winter quarters and place them on a shelf as near the glass as possible. The following is the method of a market grower in this vicinity, who tells me he gets a dollar apiece for his plants: He saves his own seed and always sows it as fresh as possible. The seed is sown 13 months before he wants the plants in bloom—October, November and December are the months in which he sows. As soon as they can be handled the seedlings are pricked off into flats, and then into thumb pots, 3-inch, and finally 5-inch pots. They are grown in low houses, very much shaded all the summer till the middle of September, when he clears the glass. One point he puts great stress on: *he never has the young "bulb" above the surface of the pot till the last shift.* He says that if it were otherwise the "bulb" would get hard, which would be injurious to the quick growth of this plant. At the last shift the crown of the corm is just level, not higher, with the rim of the pot.

WM. FITZWILLIAM.

Baronald, Orange, N. J.

A CHEAP GREENHOUSE.

C. H. P., Stockbridge, Mass., writes: "I want very much to grow roses, carnations and chrysanthemums, but I cannot afford to build a green house any larger than about 16x24. It is more convenient to run the house north and south, therefore shall have a ¾ span roof. I am greatly puzzled over the problem of how it can be built the cheapest, how it can be heated the cheapest, how it can be best arranged in regard to benches, walks, etc., and still have it possess as many 'up to date' improvements in greenhouse construction as possible. Will you please help me?"

North and south may be all right for chrysanthemums and carnations, but east and west and facing south would be better for roses. If you insist on running it north and south make it a full span and

A GROUP OF BEGONIAS IN SCHENLEY PARK, PITTSBURGH.

not a ¼ one. Build sides of lumber, have cypress sashbars, 14x24-inch double thick American glass, and hand the ventilators at ridge, using rod, rope and pulley for opening them. The posts may be red or white cedar, locust or chestnut, the siding of hemlock lined with building paper, and novelty siding on the outside. The plates should be of pine. The front and back benches may be 2½ feet wide, path on each side 2 feet or 2 feet 3 inches wide, and center bench 6½ or 7 feet wide. If this is too wide for you for middle bench reduce it by increasing the width of the side benches. Pine is better than hemlock or spruce for the benches; but well seasoned barn boards will do very well. Have stout cross bars under the benches, and every 3 to 4 feet apart, and let the boards be plank thickness, four inches higher than the side ones. Instead of getting the sashbars cut out at the planing mill besides you, send to some one of the firms who make a specialty of cypress sash bars etc. for greenhouses—several of them advertise in GARDENING—for what you want. Give them the correct width, height, and size of the house you intend to build, and they can ship you the lumber for it all cut and moulded to fit precisely. You can put it together yourself. About heating: A small hot water heater is the best and safest. Oil stoves are only provisional; the coal stove and string of sheet iron pipes are dangerous because of gas, and for roses an uncongenial dry heat. Or you could build a flue of glazed pipe to run up one side and down the other inside the greenhouse. Have a look through some commercial florist's place in your neighborhood, an object lesson will serve you better than many words. Then look into GARDENING, page 273, May 1, 1894; the illustrated article there styled "A Little Greenhouse" was drawn and written by one of our foremost horticultural engineers, it will help you. If you want a cheap house make it plain but substantial, ramshackle, poorly built greenhouses are generally the most expensive within a few years.

BEGONIAS.

Both for window and conservatory adornment begonias are admirably adapted. There are between 300 and 400 species of the genus, and a large number of them are in cultivation in our gardens. In their wild state they abound throughout the moist warm regions of Central and South America, and the West Indies, and several deciduous tuberous rooted species extend pretty well up the Andes, they also are plentiful in the East Indies, the Indian Archipelago, and northward into China and Japan. No species is reliably hardy with us, but *B. Evansiana*, from China and Japan, often lives out of doors in our gardens over winter, especially in a warm sheltered spot and under a mulching.

The begonias in common cultivation in our gardens may be divided into four groups, namely the showy leaved ones such as Rex, the bushy, fine flowered ones as "rubra," and *insignis*; the tuberous rooted ones, of which innumerable single and double flowered forms are now obtained from seed, and the non-tuberous summer bedding sorts of which *semperflorens* and its darker form Vernon are good examples. The accompanying illustration (from the Botanical Guide to the Phipps Conservatories in this Park) is engraved from a photograph of a group of mixed begonias on a bench in one of the greenhouses The plants are all young, a year old or less. The broad solid leaves belong to the Rex group, which is prized for its fine, fleshy, handsomely colored, glistening foliage more than for its blossoms. Some of the large incised leaves as shown at the right hand end of the picture are of the new race of Rex begonias. Among those we esteem most are Flora Hill, Comtesse Louise Erdody, Baron Rothschild, Indiana, Louis Closson, Louise Chretien, and Madame Treyve.

Among the best of the shrubby begonias are *rubra*, red; *mitida*, rose; *odorata*, white, *insignis*, pink; Paul Bruant, pink; *fuchsiöides*, scarlet, etc. Some begonias are valued both for their flowers and handsome foliage, for instance the indispensable *B. manicata* and its variegated leaved sort *aurea*. In midwinter it never fails to blossom.

The tuberous rooted begonias are a much abused race. As pot plants in summer and early fall they are fine, but as bedding plants, except where special treatment has been provided for them they have proven a total failure with us. On the other hand the begonia known as Vernon is excellent for outdoor bedding. It is easily raised from seed or cuttings, and from the moment the plants are an inch or two high, as long as they live they are in bloom continuously. But I mustn't forget to mention *B. semperflorens* var. *gigantea rosea*, a bold plant, and excellent for all purposes.

All begonias like a free, porous soil, firstrate drainage, plenty moisture at the root and in the air when in active growth, but very little hosing overhead, and most all of them like shade from warm sunshine.

A. W. BENNETT.
Supt. of Parks.

Pittsburg, Pa., May 20, 1895.

THE GREENHOUSE.

Have everything as neat and clean as possible—the benches cleaned, the walls washed clean and the flower pots scrubbed. Then re-arrange the plants so as to give them plenty room to grow sturdily and show themselves off to good advantage. Many plants, as azaleas, camellias, acacias, genistas, streptosolen, eupatorium and the like are much better outside during summer than kept in the greenhouse, and removing them gives a good deal of extra room; spread out the palms, ferns, screw pines, marantas, dracænas and other plants kept indoors so as to get the benefit of this room.

Very few plants will stand the full glare of the sun in the greenhouse in summer; a thin shading should be applied to the glass. Kerosene with a little white lead in it makes a good shade; apply it with a whitewash brush.

Be very particular about watering the plants, look over them twice a day, in the morning and afternoon. Don't let them get so dry as to wilt before giving them water, and give enough at a time to completely moisten the earth. Giving only enough to wet the ball half through is poor work. In watering fill the pot full to the brim, and if the plant is a wilted one as soon as the water sinks in fill up the pot again. But don't water wet plants. If the water stays in the pot without sinking in readily turn the plant out of the pot and see that the hole in the bottom is free and the drainage good. If you notice a lot of worm-casts on the top of the soil better turn the plant out of its pot and pick out the worms, for they clog up the drainage and sour the soil. In fine weather the plants should be hosed or syringed every day, say in the morning and afternoon. In hosing direct the water so as to spray the plants on the under side of the leaves as well as overhead, this keeps them clean from insects. But hose them early enough so that they may get dry before nightfall.

In warm, mild weather ventilate freely. In cool houses devoted to pelargoniums, fuchsias, amaryllises, and other seasonable flowers, full ventilation may be given in the day and a little left on all night. In the greenhouses devoted to more tropical plants the ventilation should be considerable in mild warm weather with a little left on at night, but in cool weather the ventilators should be shut early in the afternoon so as to keep in the sun heat; in the case of cool, raw or wet weather, however, a little fire heat at night sweetens the atmosphere, and the plants like it; indeed a little fire heat at night with a little ventilation at the same time is a healthful condition for the plants.

Look after the plants for next winter's blooming. Some of these, as stevia, eupatorium, marguerite, azalea, poinsettia and streptosolen are kept in pots over summer, and these arranged in a bed outside. Either plunge the pots in coal ashes or set them on ashes and fill up around them with sedge, tree leaves, ashes or earth to save them from drying out too fast. Pinch in stevias, genistas and others to make them stocky. Put in some cuttings of scarlet geraniums for flowers next winter. If carnations are throwing up flower stems pinch these back. Bouvardias also should be headed down. Encourage libonias, solanums, violets and other plants to make good growth, by keeping the hoe freely at work about them.

Better sow some cineraria seeds for early flowers, also some calceolarias; they need cool treatment and careful attention to save them from sunshine, draughts and over drying. *Primula obconica* ripens seed better now than during its greenhouse confinement, and to get seed we set the plants into an uncovered cold frame in a shady place; the young plants raised from seed sown in spring are also there, they like a cool somewhat shady place.

The fancy leaved caladiums help to fill up the greenhouses now and make a very rich show, they want plenty room, a rich porous soil, lots of water, free syringing, warmth and shade to grow them well. While the large and brilliantly variegated leaved sorts make handsome plants perhaps the most useful of all is the pretty little green and white leaved *argyrites* (shown in the illustration). It grows from one to nearly two feet high, but is prettiest in its small state, and is very useful in summer for table, bracket, mantel, or other decorations in the house, as well as being a pretty little greenhouse plant.

Gloxinias also form one of our mainstays for flowers in summer, grown either as pot plants in the greenhouse or planted out in frames and shaded from sunshine they seem to do well and bloom beautifully. They dislike to have their foliage wetted much.

SUMMER CULTURE OF CHRYSANTHEMUMS.

In May, as soon as danger of frost is past, we place our chrysanthemums outside on beds of coal ashes, and put salt hay between the pots to prevent too rapid drying out. Standard and bush plants get their last shift into 10-inch pots as soon after the first of June as we can give it to them. There is a cry against trained standards; we find them desirable for certain decorations. When they get their final potting they are plunged in the ground three feet apart each way, with a four foot walk after every two rows, to give us room for watering and tying the plants. A half shovelful of coal ashes is put under each pot to keep worms out. Wires fastened to stout stakes at each end are run along the rows, to which the stakes in the pots are tied to keep them from blowing about. To trained standards we give little or no pinching, as the tying down causes them to break out sufficiently; none are pinched after July 1. The last potting is given very firm, rammed down with a stick, to induce a stocky, short-jointed growth, as this kind of wood gives the best flowers. Mr. Farrell's motto is, "ripe wood." They are rarely watered more than once a day, and syringed in the evening. When they fill their pots with roots we give them weak liquid manure, varied occasionally by a dose of soot water. In August, when the dewy nights come, they are syringed with a solution of sulphate of potassium (½ ounce to 2 gallons of water) as a preventive of mildew. We take them into the greenhouses as early in September as we can, certainly before the equinoctial storms.

About the 15th of June we root our cuttings for the 6-inch pot plants. As the temperature of the air is so much higher than that of the ground, benches, etc., we put them in a little bottom heat and keep the tops as cool as possible. These are grown to one shoot, and disbudded to one bloom, and grown entirely indoors. This is time enough to root them for bench culture; and plant them in the benches by August 1, one foot apart. We ourselves don't plant any in benches, but this is the method of our neighbors. We plant 150 chrysanthemums in a border outside, 2 feet apart each way, and cover them with a canvas house in the fall; these we use for cutting for the table, vases, etc., so as not to spoil our pot plants.

WM. FITZWILLIAM.

Baronald, Orange, N. J.

CACTI.

The editor has asked me to tell you what I find to be "a few of the best, easiest to grow and most satisfactory of cacti for amateurs to cultivate, and why they are, with a few hints on how to grow them." I will try to name a dozen varieties under several different headings [The lists reserved for a later issue.—ED.] perhaps not the *best*, but certainly good, and not including many of the more rare and costly varieties.

THE ECHINOCACTUS enjoy heat and endure dry weather better than most other cacti. They require very little soil and not much moisture during summer, and in winter entire rest during about half the year; when the temperature should be low and the plants kept dry at at the root. I have wintered them in a dry cellar, and about six feet away from a coal heater—temperature 50° to 90°. In the cooler one the plants were dust dry at the root. In the warmer they were only watered by showering them once a month, mainly to keep the spines bright and free from dust. But few varieties of these make offsets, they are mostly raised from seed. In time they grow to be huge plants, some weighing half a ton.

THE ECHINOCEREUS are smaller and fine for window plants. They are readily propagated by small offsets and a year or two of growth will bring them to blooming size. They are very floriferous, some no larger than a turkey's egg producing from 4 to 6 blossoms three or more inches across, lasting and sweet scented. They require free drainage and protection from too much moisture overhead, plenty of sun and a resting period same as all cacti.

THE EPIPHYLLUMS are commonly known as the "Christmas cactus" and "crab's claw cactus." In its native home it grows on branches of trees, showing that it needs but little soil; it likes some shade and frequent showerings when in active growth. Cuttings of it root quickly in sand.

THE MAMMILLARIAS are mostly quite small, but present some beautiful examples of symmetry and delicacy of design. They are ideal window cacti and do well in any sitting room with a temperature 40° to 70°; they should be be watered oftener than the larger cacti. If grown in small well drained pots they can be treated to a shower and watering once a week or two, according to the temperature of the room. They have neat rosettes of spines, small but handsome flowers, and bright berry-like fruits. Offsets of them are easily rooted in sand. *M. pusilla* blooms when less than one inch high.

THE CEREUS are quick growing and though all varieties are not as free blooming (outside of a greenhouse) as they are sometimes represented their rapid, symmetrical growth and handsome spines well repay one for growing them. Excepting some of the heavy growing kinds they can be easily propagated by cuttings rooted in dry sand. The tall are useful for grafting the slender sorts on, for instance as *C. flagelliformis*, and other genera as *epiphyllum* and *mammillaria*. I have a plant of *C. colubrinus* on which is grafted *epiphyllum*, *phyllocactus*, *Echinocactus Simpsoni*, *Mammillaria stella* and *Cereus flagelliformis*.

THE PILOCEREUS or hairy cactus are not easily grown by amateurs, and excepting *P. senilis* (old man cactus) are too high priced for most of us to experiment with.

THE PHYLLOCACTUS are the easiest managed and give the best returns in flowers of all cacti; *P. latifrons*, the broad leaved, stately plant often called "night-blooming cereus" with creamy white flowers 8 to 9 inches across, and *P. Ackermanni*, called "King cactus," the day bloomer with crimson flowers 6 inches across, are the most commonly grown. In other varieties the colors range through many shades. Their flowers are gorgeous and can be had for several months in the year. They seem to prefer a good letting along during the winter months. Set in an out of the way corner, giving them enough water to prevent shriveling and don't allow them to be brushed or washed in the least during their rest. When new growth commences, or in spring shower them thoroughly and give them more light and heat, and buds may be expected in due time. They require rich, well drained soil with an annual mulch, and prefer a semi-shady position in summer. Cuttings root quickly in sand if rather dry, only syringing often. Strange as it may seem the phyllocactus roots nicely in clear water.

THE OPUNTIAS, excepting a few varieties, are most too coarse for house culture. *O. microdasys* has golden spines on light green stems, *O. leucotricha*, white spines and hairs, *O. imbricata* and *O. Bigelovii* are tree shaped and make handsome plants, *basilaris* is almost purple, minutely pubescent and with yellow spines, and *O. senilis* has soft white hairs. Joints of opuntias root quickly in any soil or sand if kept dry, first allowing the cut part to heal in the sun. They are all rapid growers, hence are very desirable for outdoor planting.

PERESKIA is important mostly as a stock for grafting other cactus. *A. aculeata*, the one mostly used, resembles a young

CALADIUM ARGYRITES

locust stem, with leaves like an orange. The epiphyllum grows stronger and is less likely to suffer from over watering when grafted on this stock than on any other, besides being held one or two feet above the soil it is given a chance to display its natural drooping habit to advantage, resembling a weeping tree. The pereskia is a rapid grower and roots easily from cuttings. Notes on general cultivation and lists of the most desirable sorts will be given in a later issue.

Milton, Wis. C. K. PLUMB.

The Fruit Garden.

MY BERRIES.

These include only currants, gooseberries and strawberries,—the last not very extensively grown. The gooseberries and currants are planted in the rows of apple trees in my younger orchards, and thrive well under the shade, without harming the fruit trees in any way. They in number exceed two thousand plants, of different years' planting, carefully cultivated; and they suffer in no way from their positions beneath the trees. The entire orchards are manured from the barns each alternate year, and beans are grown between the rows. I have practiced this method for 25 years with entire success. Great care has to be exercised in regard to the currant worm, the eggs of which are laid every spring about this time. The young worms remain upon the leaf upon which they were hatched for about a week, and then spread at once over the whole plant. Just before this time all of the bushes are carefully sprayed with very weak Paris green water,—about a level tablespoonful to a barrel of water. A stronger mixture injures the foliage, and is unnecessary. There is usually a second brood about two weeks later, which is treated in the same way. The berries are nearly all marketed in the adjoining village; an occasional crate being sent away on orders direct from families. The net price is from seven to eight cents a quart.

Strawberries are planted in the youngest orchards, the rows of trees being 35 feet apart. The berries are replanted biennially, immediately after the picking is over, in fresh ground, well enriched with commercial fertilizer. Occasionally a bed is allowed to run three seasons. Only Wilson and Crescent are set. It is hard to get good strawberry pickers, and the fruit is much less profitable than the currants and gooseberries. The object in both cases is to get a profit from the orchard ground from the start, until the trees come into pretty full bearing. In some of the younger orchards we grow potatoes for a few years, alternating with our little northern yellow corn. Subsequently the orchard crop is changed to beans, which can be grown successfully until the trees are 25 years old, or even longer. I have never seeded any of my orchards to grass, as I get better fruit, and more of it, in a tilled orchard. The beans planted are an early-dwarf yellow-eye, very nearly round, the pods being also yellow until ripe. It was my own production by selection of seed, as the beans grown further south do not ripen early enough for our locality. It is important to have a bean crop fully ripe, —the leaves all off—and harvested before the fall rains come on. The brighter the beans the better the price and the easier to sell.

Replying to yours of the 18th: I have considerable numbers of the older varieties of currants and gooseberries, but since the introduction of the Fay currant and the Red Jacket gooseberry I have grown them with great satisfaction, and shall hereafter plant no others until something still better is revealed, which is by no mea s impossible. No European gooseberries are of any value here. There seems to be practically no limit to the demand for these berries; I sell them all over the state, and out of the state; and although I plant them by the thousand and have been growing them since 1866 the demand still exceeds the supply. The only rules of tillage are good land, in good order, free from weeds, and due attention, with plenty of hellebore for the worms, applied freely and promptly as soon as they are hatched. The eggs are nearly all laid on leaves near the ground, and about a week after hatching they spread themselves over the bush. That is the time to dose them. If something cheaper than hellebore is wanted a very weak Paris green water, say a teaspoonful to a common water pail, does the work. More will burn the foliage. As to fertilizers, I use all kinds. The commercial kinds of standard makers are all good, but I buy all the cattle manure I can get first. T. H. HOSKINS.

STRAWBERRIES are now in bloom and setting fruit. See that they are well mulched, and that the mulching is drawn in to and under the plants to keep the berries clean. Straw, hay, sedge, lawn mowings, excelsior, or anything of that sort makes a good mulching, and it should always be put on before the berries begin to soften. Robins and catbirds want the first taste of the berries, and the way in which they take a bite out of this berry and that one all over the patch is quite annoying; but after a few days they get less troublesome. We set a fence of wire netting around the patch, with a gate and lock, and it has a wonderful effect in saving the berries. And as netting is quite cheap now—we paid 60 cents a hundred square feet for it—it doesn't cost much to put a 4-foot fence around one's patch. And, better still if you have thread netting to throw over the patch to keep the birds out, but this should be raised up over the plants on a light skeleton frame of posts and laths or strings of tar cord.

Orchids.

PHAIUS GRANDIFOLIUS.

This fine old easily grown orchid comes into bloom, with us, usually about Easter. The flowers are borne on erect spikes and last fully three weeks in perfection. As soon as the plants are done blooming I keep them rather dry for a few weeks and then repot them. They are usually potted in a compost of turfy loam and leaf mould, in well drained pots. Last year I potted a few, experimentally, in a compost of peat-fibre 2 parts and 1 part sphagnum moss. Those that were potted in the last named compost grew more vigorous and were in every respect superior to those potted in the loam. They require plenty of light and are benefited by liquid manure when coming into bloom. I divide the large plants every year, as I find that plants in 8 or 9-inch pots give the best results; when the specimens become too large they are crowded in the center with effete pseudo-bulbs; besides they are not as handy for decorative purposes. WM. FITZWILLIAM.

Orange, N. J.

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GARDENING

WILLIAM FALCONER, Editor.

PUBLISHED THE 1ST AND 15TH OF EACH MONTH
— BY —
THE GARDENING COMPANY,
Monon Building, CHICAGO.

Subscription Price, $2.00 a Year. 24 Numbers. Advertising rates on application.
Entered at Chicago postoffice as second-class matter.

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All communications relating to subscriptions, advertisements and other business matters should be addressed to The Gardening Company, Monon Building, Chicago, and all matters pertaining to the editorial department of the paper should be addressed to the Editor of GARDENING, Glen Cove, N. Y.

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WAY DOWN IN GEORGIA.—Under date of May 20, Mr. A. W. Smith, of Americus, Ga., writes us: "A cold winter with late spring. But since the March freeze there has been no frost, and we have had the best gardening season I have ever known. There will be fine crops of pears and peaches with other fruits, and many who invested in peach orchards will get back this year what they paid for land, trees, and all expenses with profit in addition. Now that some northern men such as Hale and others have invested, the North will believe what we always knew, that southwest Georgia possesses more of the good, and as little of the evil, than any part of the U. S. Any working young man with farm sense and sobriety can get rich if he will, and he need not grow cotton either. Lettuce, spinach, asparagus, spring turnips, and radishes are past, and we are now enjoying to the full Irish potatoes, English peas, beets, new onions, and wax beans, with squash and cucumbers, and hardhead cabbage in sight the last of the week."

"WE THANK GOD FOR THE LILAC" is how the editor of *The Island* expresses himself when commenting on the beauty, fragrance, and popularity of this universally grown shrub, "the most generous offering of the floral season." And so do we.

DR. T. H. HOSKINS of Vermont, the proprietor of the Memphremagog fruit and seed farms, has resigned from the editorship of the *Vermont Farmer's Advocate*, to attend more closely to his fruit growing business. The veteran doctor is one of the brightest, soundest and most experienced pomologists in the land, and from its beginning he has been a staunch friend of GARDENING.

DOUBLE SCARLET THORN.—We have received some sprays of bloom of this lovely little tree by mail from Mrs. R. N., but no word either in the package or by letter about them, and there was no legible postmark on the box. Haw thorns are very beautiful with us just now, while the double flowered ones may appeal to the eye they are scentless, on the other hand the single flowered ones are quite fragrant.

EIGHT TONS OF MUSHROOMS.—The Lansdale Mushroom Company of Pennsylvania have several very large span-roofed, above-ground, wooden houses built expressly for growing mushrooms in. Both top and sides have a foot of insulation of sawdust to steady the temperature. How successful this company is may be appreciated from the fact that they have grown and shipped nearly eight tons of mushrooms this season.

ARE VARIEGATED LEAVED PLANTS, particularly trees and shrubs, more tender as regards cold, than the typical green-leaved forms? We do not believe they are. Certainly no variegated leaved tree or shrub at Dosoris has shown itself to be a whit more tender that the type; on the other hand the golden yew is a marked example of the variegated plant being hardier than the green leaved one. But the foliage of variegated leaved trees and shrubs is often apt to suffer in summer.

FROM NEW MEXICO.—The following letter from a little girl in New Mexico who loves flowers and wants to know the plain truth about them and how to grow them, is particularly gratifying to us. She writes: "I am a little girl eleven years old and can only count my money in nickels and dimes but I save them up to pay for my subscription. I like my GARDENING paper and have found out whole lots about caring for my plants and flowers from it." C. L. B.

Gallup, New Mexico.

DISASTROUS SPRING FROST.—Dosoris is particularly well favored as regards freedom from late spring frosts and early fall frosts, this is because it is surrounded by salt water, and having faith in our immunity we usually plant out tender stock earlier than we would do did we live much inland from the sea. But the frost caught us this year. On the morning of the 17th of May we had a gray frost that blackened the strawberry flowers that were open and singed tomatoes, beans, heliotropes, vincas, white day lilies, and some other things, but altogether our loss is slight. The noticeable thing about it is, that during twelve years at least preceding this one we have had no frost as late as the middle of May. Inland from the seaside the frost was harder and proportionately more destructive. The chief lesson it teaches us is not to be in too great a hurry to set out tender plants.

LILACS.—We have a large number of the new lilacs several years old and in good bloom, but it doesn't take an expert to pick out the favorite flowers, any child will point to Marie Legraye as the finest white and Ludwig Spæth as the best dark purple one. The great majority of lilacs have lilac or bluish tinted blossoms, but for cut flowers nobody wants them when they can get those above named; and the bluer the flower is the more positively is it rejected. Some years ago when these new lilacs were first disseminated most of them were grafted plants; we are now suffering from this, for the stems are riddled with borers and some of the kinds are enervated or killed, and we have nothing left but the root and as many suckers as we care to let grow, but these root sprouts are all of the common lilac. In buying lilacs now insist upon getting the varieties on their own roots, then if the borers do destroy a few stems there will be enough left, for every sucker is identical with the parent.

ENCOURAGE THE CHILDREN.—What a pleasure it is to a father or mother who is fond of flowers and gardening to have their children take an interest in Flora's treasures. How delightful it is to walk in the garden in the cool of the evening with a warm, soft little hand in yours, leading you to where the favorites grow, a pair of interested and laughing eyes flitting between yours and the blossoms, and a sweet little voice piling you with questions and comments about the pansies, the roses, the poppies and the flowers. While all children love flowers, some are more emphatic than others in their fondness for them, for the love is stronger. At Dosoris many children come to us for flowers, they want a few for the church, or the school, or some particular friend, or a funeral, or not infrequently for themselves, for they love them. And they all get some. Be they rich or poor, young or old, stylish or in tatters, acquaintances or strangers, it is immaterial to us, they get some flowers. The other day we came upon a ten or eleven year old boy down on his hands and knees smelling the pansies in the borders, he was all alone, and a stranger to us. Upon inquiry we found he lived some three miles away and came here after school hours alone and a-purpose, to see the flowers. Such children should be encouraged.

FAMILIAR FLOWERS OF FIELD AND GARDEN is the name of a book written by F. Schuyler Mathews and published by D. Appleton & Co., New York The book is 5½ by 7½ inches and contains 308 pages, and over two hundred illustrations. Mr. Mathews is an artist by profession, and he loves flowers, knows them and grows them, and has the happy faculty of communicating to others, with pen and pencil, the knowledge he possesses of Flora's realm. As regards properly naming and describing the true colors of flowers we have for years looked upon him as our foremost authority. Two hundred and forty pages of the book are devoted to a description of wild flowers and common garden flowers, and these are arranged according to their season of blooming, beginning with the mayflower of our woods and the snowdrops of our gardens, and passing on with the different common flowers of spring, summer and autumn, ending with the chrysanthemum. Over fifty pages are devoted to "a systematical index of the names, colors and localities of familiar flowers of the United States

including a floral calendar." This gives the name, family, color, locality, environment and time of blooming of a great number of plants, and the page in the body of the book where each one is referred to is also noted. Altogether it is a delightful book, and the illustrations drawn from life by the author himself are so truthful as to be an invaluable help in recognizing the flowers referred to.

'POSSUMS V. BIRDS IN THE GARDEN.—We love birds and delight to encourage them to make their home in the garden, to live in it and breed in it, and we promise them every reasonable protection; they have the use of every tree and shrub and vine to build in, no person is allowed to molest their nests, and we keep a gun to save them from the hawks. But in the 'possum they have an unremitting enemy. He does his work like a thief, in the night. Noiseless and tireless he climbs up into the bushes, and up into the trees and vines to get at the birds' nests, for instinctively he knows where they are, and breaks and sucks the eggs. In the morning you find that the robin's nest you were so proud of the day before is tilted to the side and torn and empty, and the broken empty eggshells are scattered on the ground beneath. Don't blame the small boy, for he didn't do it, that is 'possum's work. 'Possums are quite plentiful on Long Island and lots of them find their way to Dosoris; they cross the bridge from the mainland. But their existence here is brief, as sooner or later the dogs will get them. Their habits are nocturnal and their movements very quiet. During the day they stay in holes under some of the sheds, under the logs in the wood pile, under the haystack, under the summer house, and like places; we have also found them lodging among the vines on top of the summer house and up in the branches of trees. They are very prolific, and have ten or a dozen young at a time. They are abroad in winter as well as in summer, and are easily tracked in the snow; birds are then their prey. And they are constant visitors to the pigs' troughs and swill barrel. Look out for your chicken houses, for 'possums love poultry. Baked 'possum and sweet potatoes are the joy of the black man's heart. But what seems strange to us is that among the dozens of 'possums that the dogs here have killed we have never known the dogs to attempt to eat a 'possum as they would a rabbit. 'Possums are bad gardeners, keep them away.

The Vegetable Garden.

THE VEGETABLE GARDEN.

Outdoor lettuces, spinach, asparagus, radishes, onions, chives, rhubarb and parsley are in good using condition. But we must keep up a succession of good fresh vegetables.

Lima beans may be sown now with tolerable certainty of success anywhere. Snap beans should be sown at least once a fortnight. Better sow little and often than so much at one time that they would get too old before being used. We keep on sowing peas up till the middle of June; there is very little use sowing them later because of mildew, for they seldom keep up after the 20th or 25th of July. If not already done, set out egg plants, peppers and tomatoes; indeed we sow a few more about this time; they give us less watery fruit in September and October than do the earlier plantings. Keep the young celery well watered, thin the plants a little in the seed beds to make them stocky and well rooted. Break off and remove the flower stems of rhubarb. Pluck out the flower heads from "set" onions. Continue to plant out a few lettuces wherever there is a little empty space, also sow spinach and radish for succession. If you haven't sown the stock of late cabbages, do so now. The seed is cheap, so sow enough, but don't sow thick; better sow thin and have stocky plants, for it is seldom that we have or take time to thin them before planting them out permanently.

Keep the hoe and the hand cultivator or horse cultivator at work among the crops to clean the ground, mellow the soil and conserve moisture. And do it often. It is much easier to keep the weeds down when they are quite small than when they get larger.

The exhaustive article on the vegetable garden printed in last issue is still pertinent.

THE MUSHROOM BUSINESS.

M. K. P. F., Bay Shore, N. Y., is anxious to go into this business as a money-making venture. He writes: "My business training has been entirely mercantile and clerical, up to the present, so that my only equipment for an agricultural pursuit is plenty of muscle and a *great desire* to succeed financially. * * I would be only too glad to offer my services, merely for the training, in some successful grower's cellar."

That's all very pretty, but "it isn't all gold that glitters." Very few men indeed, have made fortunes growing mushrooms alone. Mushrooms coupled with something else are all very well, but there is too much risk in themselves alone for us to abide by them only. Our correspondent should call at some of the commission houses in New York that handle mushrooms and get acquainted with the growers, and see if he can come to some understanding with one of them.

BALED MANURE FOR MUSHROOMS.

W. F. W., Leominster, Mass., asks: "Where can I buy baled horse manure in Boston, suitable for mushroom growing?" We do not know. Ask some of the Boston agents who deal in horse manure, or ask the Board of Health if the manure there is baled. Some years ago, by order of the Board of Health of New York, the manure here had to be baled and sent out of the city, but the agents had great difficulty in getting rid of the bales, their customers among the farmers refusing to take it. Baling was then done away with. But a few months ago the Board of Health again ordered that the manure, under certain conditions, should be baled.

BIG MUSHROOMS.

I to-day gathered from an old hotbed two large mushrooms (*Agaricus campestris*) which were the largest I ever grew. They measured 8¾ inches and 9 inches across respectively and weighed 1 lb. 2 oz. and 1 lb. 4 oz. The stems were 2½x3½ inches thick. They were of an irregular shape, caused by crowding each other. There were three smaller ones under them, and all were in a solid clump.

Davenport, Ia. F. H.

BRICK SPAWN.—G. A., Salt Lake, Utah, wishes to raise some mushrooms and asks where he can get brick spawn. Send to J. C. Vaughan, Chicago, or other good seedsmen advertising in GARDENING. August is soon enough to begin.

Insects.

PLUM TREE APHIS.

I send you by this mail specimens of greenfly that are killing our plum trees; they made their appearance, or were first noticed, two or three years ago on the Abundance plum trees, but now they are on all kinds. Most of them are green, but later some are black. The leaves curl up and after a while die. I have tried spraying with different poisons, but don't seem to touch them—I think on account of their being hid away in the curled up leaves, and the poisons do not get to them. What can we do to destroy them?

Eaton, O. S. J. G.

The insect that is killing the leaves of the plum trees is without much doubt the plum tree aphis, *Aphis prunifolii*. Not a single individual of it could be found in the closely wrapped package when opened, all those inclosed having been destroyed by about a half dozen of the larvæ of two or three species of Syrphus flies which were among the leaves with them; two of them had completed their growth and had changed to their pupal stage. There was also with them a lady bug, *Coccinella novemnotata*, and a number of eggs which she had deposited, the larvæ of which would have aided those of the Syrphus flies in checking the multiplication of the aphides. Often these natural enemies of aphides (plant lice) abound in such number that they are able to arrest entirely the attack, but not until serious injury has been done earlier to the foliage.

The plum tree aphis can be kept under by spraying about the time that the leaves begin to appear—later the insects will be so sheltered in the curling of the leaves that they can not be reached by insecticides. Paris green would be of no service in aphis attack. As the food is taken by suction some substance must be used that kills by contact. Kerosene emulsion is probably the best thing that can be used. Strong soap-suds will also kill all of the young plant lice while they are young, as also a strong tobacco water. A whale oil soap solution would be better for the purpose than either of the last two named.

Albany, N. Y. J. A. LINTNER.

Miscellaneous.

COW MANURE.

SUN-DRIED COW MANURE.—W. B. M., Chicago, writes to say that he has used this and also cow manure saved in the ordinary way, "and find the dried to give the best results." Still our experience has been emphatically in favor of stable saved cow manure. We submitted W. B. M.'s letter, and our note page 220, to Prof. I. P. Roberts, Director of the Cornell University Agricultural Experiment Station, and he replies that he "can find no analyses of cow chips." * * "Pulverized dry cow chips has without doubt a beneficial physical effect on the potting soil. If cow manure could be dried and fined without exposure, it would contain a larger amount of plant food, especially nitrogen, than that dried in the in the open. From the fact that it would contain this larger amount of nitrogen

not so much could be used without causing injury to the roots of the plant, or what is termed 'burning off.' If the chips which are poorer in nitrogen are used a greater amount could be used with the potting soil without furnishing an unhealthy amount of nitrogen. This would result in producing a better physical condition of the soil than if a less amount of the rich cow manure was used."

STABLE-SAVED COW MANURE.—It may interest some of our readers to know how we save it. We have eight or nine milch cows, Jerseys, and turn them out to pasture the second or third week of May, leaving them out day and night till about the middle of October, there being a shelter and milking shed and running water in the field where they are. Then we bring them home, where they have a warm stable and a warm sunny yard. They are fed good hay, corn stalks, mangels, carrots, bran and "oats and corn" feed. We have no manure shed. But the stable is cleaned out every day and the manure carted to a manure yard, where it is piled compactly into a 4 to 5 feet deep square heap. We save it with as little straw as possible. Sometime in summer, when we get a chance, we make up a compost heap consisting of two-thirds in bulk of sod loam and one-third of this clean cow manure. The loam dries up the manure and in a few months this makes a splendid heap of soil for potting or most any purpose where rich earth is needed. It should be turned to mix it well together before winter. The rest of the manure we turn over and save clean, making a square pile of it, and cover it with a coating of loam to save it from sun, wind and rain. If extra manure is needed we take it out of this heap, and here also we get the manure for top dressing and liquid stimulants, and for our sweet peas. In November the ground to be used for sweet peas the next season is dressed four inches deep with cow manure, which is dug two spits deep into the soil. One knows by the peas that there is something unusually good within their reach. This takes about all of the stable saved manure. That which accumulates in the yard we use for corn or vegetables. If the hay one uses is clean a compost of cow manure makes an excellent dressing for a lawn, especially for a worn-out one. The grass seed passes through the animals uninjured, and although piled in the heap of moist manure for several months it remains unhurt, and comes up in spring quite thick. The heating of horse manure kills much of the grass seed in it.

PLANTING OUT AMARYLLIS IN SUMMER.

F. H. P., New York, writes. "I have about 80 amaryllis bulbs—in I suppose 20 or more varieties—now I find I shall not be able to give up the room in my dwelling house windows for them next winter, so I write to ask if they can be treated in the same manner as gladiolus bulbs (planted out in the summer and kept dormant and dry during the winter); will they be as apt to bloom?"

Yes, you can plant them out in your garden in summer and lift them in fall and winter them in a warm cellar, keeping the bulbs in dry earth, sand, cocoanut fibre or such like material. They will bloom nicely in summer when so treated, but perhaps not as well or as brilliantly as if flowered in a window or greenhouse in early spring. Plant them out now, not with the view of filling a flower bed with them as you would with hyacinths or tulips, but set out a row of them as you would a row of leeks to get good growth and fine bulbs. After a long rest next winter they will probably bloom quite full when planted out the following summer.

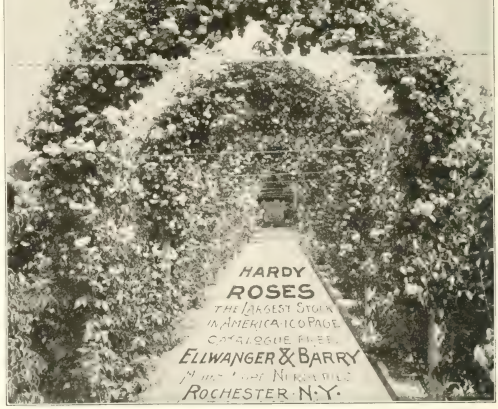
SACALINE, the new forage plant, botanically known as *Polygonum Sachalinense* was grown by us as long ago as 1877, and it is enumerated in our Catalogue of the Plants Cultivated in the Botanic Garden of Harvard University, in 1879. We know nothing about its value as a fodder plant, but many years' practical experience with it as cultivated in the garden have surely given us some insight into its character and behavior. It is the rankest growing member of the genus so far as we know. As an ornamental plant, while far more gigantic than *P. cuspidatum*, it is not as handsome as the latter species; on the other hand it isn't anything like such a pestiferous runner at the root as that kind is. Apart from being species of unusual robustness they are very distinct from each other. At Dosoris we find that they thrive by the seaside, where the salt water occasionally laves their roots, about as well as asparagus does. And this is an important discovery. But driving windstorms lashing them with salt spray will defoliate them and ruin their appearance above ground, their roots, however, don't seem to mind it.

TRITOMAS that we left out over winter where they grew last year and mulched heavily have survived perfectly. All of the old leaves died, and when we removed the mulching in spring we cut off the leaves close to the ground, and now a crop of young leaves has come up quite as fresh and vigorous as on the plants we wintered in cold frames and planted out in spring. The rows are 2½ feet apart, and plants 2 feet asunder in the row, and we have a thick row of gladioli planted in the middle between the rows of tritomas. In about a month from now the tritoma leaves will grow enough to meet each other, but we cut them back a little so that they do not touch the gladioli and in this way we prolong the show of flowers without hurting the plants.

HAIL INSURANCE.—Some years ago the florists of America started a Hail Association, that is an association to insure florists against damage to their greenhouses caused by hail. It has now 574 members and carries insurance on 6,653,695 square feet of glass. Success has attended it from its inception and it has proven a blessing to many a florist. Following our lead, England has just gotten up a somewhat similar association. It is called "The Nurserymen, Market Gardeners', and General Hailstorm Insurance Corporation, Ltd." Capital £100,000.

CYTISUS ANDREANUS, a very beautiful and distinct variety of the "yellow broom," and which has received a good deal of notice (deservedly too) during the last few years, was killed to the snow line last winter. It may be hardy from Philadelphia southward, but it isn't reliably hardy at Dosoris. But wherever it proves hardy it should be included among small garden shrubs, for it is a beauty.

If you like Gardening please recommend it to your friends.



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Berry bushes should be thoroughly mulched. Firs , by cultivating and hoeing the surface soil; followed at once by an application of green clover, coarse manure, straw or some other coarse litter. Clover is best, being free from noxious weeds and rich in plant food. Mulch should be placed around each hill four or five inches deep, leaving about three feet between the rows for cultivation during the summer. This treatment retains moisture near the surface, prevents the growth of weeds, keeps the berries clean, enriches the soil and is the only practical safe-guard against drouth.

When new canes of the blackberry and raspberry are fifteen inches high, nip off about two inches of the tip, this will check the upward growth of the plant, cause several new branches to grow and greatly increase the bearing surface of the canes. All weak canes should be cut out. This treatment gives a low stocky well formed bush, not liable to damage by severe storms. A well cultivated blackberry bush will usually set more fruit than it can mature. The quality and size of berry may be greatly improved without reducing quantity, by trimming off one-fourth or one-third of the fruit stems.

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The worm on currants and gooseberry will appear on the lower leaves soon after the fruit forms. The remedy for this pest is so simple, there is no cause for neglecting its use: One ounce of white hellebore dissolved in two gallons of water, applied with sprinkler or brush broom, when worms first appear, will exterminate them. Two or possibly three applications may be necessary. Paris green is also used in same manner.

Sparta, Wis. M. A. THAYER.

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This is a very pretty climber, and it grows so rapidly that one can easily procure shade on and around piazzas or other places, very early in the season. The foliage is handsomely variegated—white and green, sometimes a little yellow, and the effect is very pleasing to the eye. But it has a very serious drawback. Its seeds are abundant, and they have a way of getting all over one's place. Last season we had these vines growing around a veranda. This spring the whole premises are full of seedlings. Not only around the veranda, but behind the house, on both sides and on my neighbor's premises. So I will plant no more of the *Humulus Japonicus*, and I shall have to do considerable work in eradicating the crop now swarming about me.

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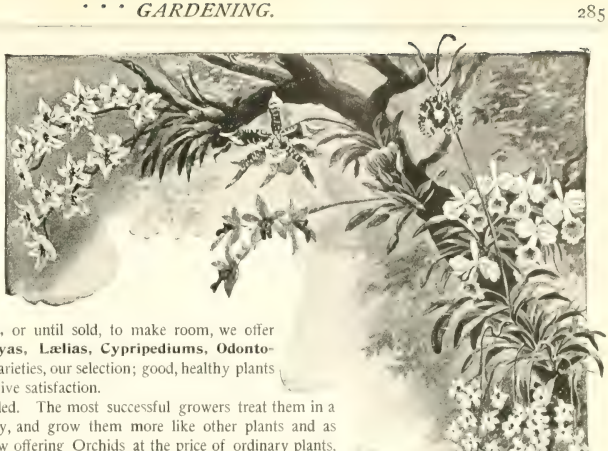

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I MUST say here how much I admire the beautiful get up of your magazine, and still more the intensely practical character of its contents. W. F. MASSEY.
Agricultural Experiment Sta., Raleigh, N. C., April 18, 1895.

YOUR JOURNAL GARDENING is a perfect mine of information which I highly appreciate. How I came to miss it for years I cannot understand. B. W. V. W.
Poughkeepsie, N. Y.

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Wellston, Ohio, May 18, '95.

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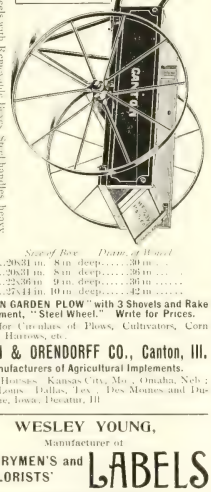

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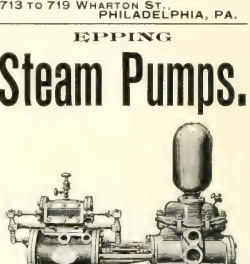

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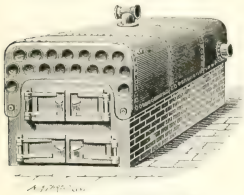

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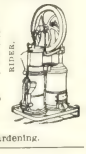

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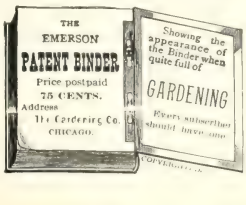

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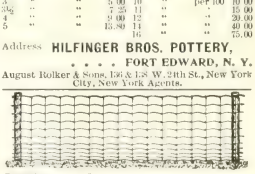

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GARDENING

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Trees and Shrubs.

XANTHOCERAS SORBIFOLIA.

This is a very beautiful little tree from Northern China, easy to cultivate, and so floriferous that when it is in bloom one can hardly see anything of it except blossoms. It was beautifully illustrated in GARDENING May 15 last year, when a handsome specimen 7 feet high in bloom, and a spray of flowers and another of fruit were shown. While the Dosoris specimens are the most symmetrical and tree like plants of the kind that we know of, they are not so large as the specimen now shown in our engraving. It is growing in Fairmount Park, Philadelphia, and is about 10 feet high and as much in spread of branches, and is by far the largest plant of its kind we know of in cultivation. Our illustration is engraved from a photograph taken a few weeks ago, and we are indebted to the courtesy of Mr. A. Blanc of Philadelphia for its use.

So far as its beauty is concerned, it is one of the first of small trees that we would recommend to amateurs to plant, but unfortunately it is often peculiar in its behavior in gardens, taking the Japanese die-back or some much the same disease very badly in summer.

While we personally have nothing to complain about in this way, we are well aware that most of the trees imported into the country before the eighties are dead. The tree is hardy enough, we found it perfectly so at Boston, and we believe it likes good, friable, deep, rich soil that is moderately moist, and an open but sheltered place to grow in.

The Ash leaved Yellow Thorn is the English name we find given to this plant in an article in a recent issue of the *Gardeners' Chronicle*. The same article gives us instruc ion about the propagation of the plant, which makes us smile. But that is a matter concerning the nurseryman rather than the amateur. Even for his benefit, however, we may say, sow the seed in the fall when it ripens and not in "April or May," and sow it in boxes left out over winter in a cold frame, with the protection of a mulching and a sash, but not to exclude frost altogether. Cuttings of the thick fleshy roots taken in early spring and set in light soil in a cold frame and shaded and protected with a sash will also root nicely and send up a top. Top cuttings are too tedious and uncertain.

The Dosoris plants ripen considerable seed every year, and they are the parents of a good many plants throughout the country.

THE RETINOSPORAS GOT KILLED.—W. J. B., Plainfield, N. J., writes: "I lost nearly all my retinosporas this winter, including *plumosa aurea, pisifera aurea, filifera, filifera aurea, squarrosa* and *obtusa aurea*."

TREES AND SHRUBS IN BLOOM AT ROCHESTER, N. Y.

Sharp frosts were experienced here on the 21st and 22d of May, doing great damage to grape vines and strawberries and blackening the foliage of many trees, shrubs and vines; for instance cucumber trees, catalpas, mulberries, smooth, staghorn, Chinese and Japanese sumachs, chaste shrubs (*Vitex*), Dutchman's pipe, Virginia creeper and *actinidia*. A hot spell of weather lasting several days set in on the 25th of May, with day temperatures frequently over 90° in the shade, wilting the foliage and flowers of trees and shrubs.

Spiræas Van Houttei, Cantonensis and *chamædrifolia* were in fine bloom between the 22d and 31st ult; *crenata* and *ulmifolia* are about past, a few flowers still linger on *rupestris, rotundifolia alba* is in good bloom, and *opulifolia* and its golden leaved variety have been in flower for four or five days.

A few flowers still linger on the rose acacia (*Robinia hispida*). A beautiful variety of it from Germany, named *Camuseti*, has large clusters of pinkish red flowers. The clammy locust (*Robinia viscosa*) is in good bloom.

The yellow wood (*Cladrastis lutea*) is in full flower. Its large panicles of creamy white flowers are very handsome. The same trees were in full flower last year, notwithstanding a belief that they only flower on alternate years.

The Spanish furze (*Ulex Hispanica*) is about past blooming. It is a diminutive shrub with pretty yellow flowers, and much resembles the common whin (*Ulex Europæa*). It winters well here with an evergreen branch laid over it. *U. Europæa* under a heavy covering gets killed to the ground but starts from there again in spring.

The American wistaria (*frutescens*) is in good bloom.

The common snowball (*Viburnum Opulis sterilis*) is past, but the Japanese one (*V. plicatum*) is in good bloom. *V. Lentago* was in full flower May 30. *V. cassinoides* is passing out of bloom, and *V. dentatum* and *V. lævigatum* are coming into flower.

The alternate leaved dogwood (*Cornus alternifolia*) is past blooming, the round leaved one (*C. circinata*) is in full flower, and the silky dogwood (*C. sericea*) will be in bloom in a few days.

The Chinese fringe tree (*Chionanthus retusus*) was in fine bloom on May 29. It does well here. The American white fringe (*C. Virginica*) was in full flower two or three days later.

Fontanesia Fortunei was at its best on the 3d inst. This Chinese shrub grows here with remarkable vigor. Its branches have a graceful pendulous habit, its foliage of a deep glossy green color and its flowers are dull creamy white, in axillary and terminal racemes. The tips of the branches were slightly injured last winter. *F. phillyræoides* grows slowly and has never flowered here. It gets killed back more in winter than the former.

The diervillas have been very gay for the past week, and some of the early flowering varieties are about past. Out of thirty-five or forty varieties here the following are a few of the best: Abel Carriere, Hortensis nivea, Hortensis rubra, Othello, Stelznerii, Symondsii, Madame Tellier, President Duchartre, Candida and Pecheur Fils.

Deutzia gracilis in exposed places was badly hurt with the late frosts. Where it escaped it was in full bloom about the 28th of last month.

Among lilacs *Syringa villosa* is now displaying its pinkish purple flowers, and *S. Josikæa* purplish, scentless ones. *S. Japonica* and *S. amurensis* have not yet opened.

Lonicera Albertii is a useful bush honeysuckle, with small, narrow foliage, pendulous branches and rosy lilac flowers. It has just passed out of bloom. The wild scarlet trumpet honeysuckle (*L. sempervirens*), the yellow one (*L. flava*), the European ones *L. Periclymenum*, buff, and *L. Caprifolium luteum*, yellow; *L. Canadensis*, yellowish white; *L. grata*, pink purple, and *L. Douglasii*, orange, are now in bloom.

False indigo (*Amorpha fruticosa*) is in bloom, and the bladder senna (*Colutea arborescens*) has been showing its yellow pea flowers for the past five or six days. The sun rose (*Helianthemum vulgare*) makes a bright show every morning, but the petals drop in the afternoon. The large flowered white mock orange (*Philadelphus grandiflorus*) is now very beautiful, and the common fragrant one (*P. coronarius*), in several varieties, will be at its best in a day or two.

The matrimony vine (*Lycium barbarum*) has commenced to show a few violet purple flowers, and the silk vine (*Periploca græca*) is opening its brownish purple wheel shaped ones.

The early fragrant bush honeysuckle (*Lonicera fragrantissima*) is now displaying its reddish fruit. J. DUNBAR.

Rochester, N. Y., June 7, 1895.

XANTHOCERAS SORBIFOLIA FROM SEED.

I will tell you about my *Xanthoceras sorbifolia* raised from seed which you sent me in November, 1893, and which safely wintered in a cold frame. I planted it out in early April; on May 11 this year it bloomed and continued in bloom until May 31. It is strong and vigorous and 21 inches high. Only one of the seed sent me in November last has germinated, but probably more will, as they are late in germinating with me.

JOHN J. DONALDSON.

Millbrook, N. Y., June 3, '95.

We are glad to know it. So far as our supply of seeds went we sent them to friends interested in flowers and gardening who asked for them. Some have reported success, others complained that the seeds failed to germinate with them. But President Donaldson's experience is especially valuable, as it shows us that in eighteen months from time of sowing his plant came into bloom. This was a year ahead of our experience.

The Flower Garden.

HALF HARDY TRITOMAS.

F. H. J., Lancaster, N. Y. writes: "I see in German catalogues half hardy tritomas for sale. I grow *T. Uvaria* without any trouble. How shall I grow the half hardy ones?"

While we do not regard any tritoma as being perfectly hardy, *Uvaria* (or properly *Kniphofia aloides*) is generally catalogued as being hardy, and in a sheltered place and under a winter mulch it lives outdoors with us. Some of the other species as *MacOweni, triangularis, carnosa, Rooperi,* and *Burchelli* are given as half hardy, or plainly tender, and so they are. But we may succeed with any of them by lifting the stools in the fall, and heeling them in in the cellar in a temperature such as you would keep for apples or potatoes or in a cold pit kept nearly frost proof in winter. When we lift them we cut their leaves three-quarters back, then crowd the stools close together on an earthen floor and pack sandy soil between and over them, in other words heel them in there but not to bury the leaves. Keep the tops dry, but the roots moderately moist all winter, and merely exclude frost from them. As soon as the ground is dry and mellow enough in spring for planting bring out the plants, divide them if you want more stock, and plant in their summer quarters. At that time too we plant a row of gladiolus bulbs between the tritomas, and about the middle of June when the leaves of the tritomas have grown enough to reach out upon the gladioli we cut them back a little This does the tritomas no harm, and it gives the gladioli a chance to get their leaves and scapes well up above the dense leafage before any harm is done to them. Besides, the combination adds to the beauty of the mass.

PRIMROSES HARDY?

Inquirer asks: "Which of the following primulas are hardy: *Cashmeriana, cortusoides, denticulata, Forbesi, farinosa, Japonica?*"

Under ordinary conditions none of them will make itself at home out of doors. *Cortusoides, denticulata* and *Japonica*, we have had fine under special conditions out of doors, the last named especially. But all (except *Forbesi*, which we have not tested in frames) will thrive admirably in an east facing cold frame. It isn't altogether a question of hardiness with these primroses, for *farinosa* is hardy enough, but it seems to dislike our conditions. Take *Primula Mistassinica*, a lovely native species for instance: Our friend James Goldie of Ontario grows it beautifully planted out in his garden, but it would die within a year if so treated at Dosoris, in a cool cold frame facing north or east, we could get along with it. We grow the *denticulata* and its variety *Cashmeriana* in a frame along with polyanthuses and find they do very well. But it is with them as we find it with polyanthuses, a fresh stock should be raised from from seed every year.

HARDY HERBACEOUS SPIRAEAS.

We have several fine kinds in the garden. The commonest is the dropwort (*S. filipendula*) with large heads of fleecy white flowers, but whiter and prettier by far is the double flowered form of it. They are in bloom now. *S. lobata* (commonly called *venusta*), a tall native plant with pinkish blossoms is very pretty; *palmata* belongs to the same class and has much deeper colored flowers, but it doesn't always maintain its vigor—it often "wears out." We have three forms of the meadow sweet (*S. Ulmaria*), namely, the type, a variegated leaved one, and a double flowered one, and all are hardy, easy to grow and worth growing. They bloom a little later.

The Kamschatka spiræa (*S. vestita*) is not unlike a tall gigantic meadow sweet. While hardy and a good perennial it has a somewhat coarse appearance.

The goat's beard (*S. Aruncus*), quite different in general appearance from those already named, is a big, bold, handsome perennial, with ample panicles of small whitish flowers that rise well above the foliage. It will thrive in the open light or in partial shade. Nearly related to the goat's beard, but smaller in all its parts and more refined in appearance is the

SPIRÆA ASTILBOIDES FLORIBUNDA

Japanese *S. astilboides*. It has small white flowers in spicate panicles and bears a good deal of resemblance to the common spiræa (or properly *Astilbe Japonica*) so much grown for open border decoration in summer or greenhouse culture in winter and spring. Our illustration shows an improved form of it that is admirably adapted for outdoor use or for growing in pots for winter flowers. It is called *S. astilboides floribunda*.

Closely related to these spiræas is the genus *Astilbe*, indeed, the popular little plant *A. Japonica* is often called *Spiræa Japonica*. It is quite hardy and makes a fine border plant, blooming nicely in June. There is a variegated leaved (golden netted) variety of it too, and also a denser flowered form of it of recent introduction, namely, *Astilbe Japonica compacta multiflora*, but the people generally dub it the double spiræa. It is a beautiful form to be sure, but for real beauty we would as soon have the type. All like good, rich ground and moisture, but good drainage. And all can be readily increased by division in early spring.

NOTES AND COMMENTS ON CANNAS.

On a trip last fall through the eastern states I made the following notes:

At Henry A. Dreer's, Philadelphia, Canna Souvenir d'Antoine Crozy showed to better advantage than did Queen Charlotte; it has similar markings, but is darker in body of the petals and has a narrower yellow margin. Queen Charlotte is a striking variety with large bright scarlet petals broadly margined with yellow, but I am afraid that under the same conditions of growth it may not produce as many blossoms as would Madame Crozy. It seems to have the habit of Chas. Henderson of coming late into bloom. L. E. Bailey and Martin Cahuzac, both fine yellows but of different shades, were very striking. Lemoine's Eldorado is one of the best of the so-called yellow cannas; it is a good sort and bears large trusses of flowers of compact habit and good substance. At Dreer's I also found a collection of about 60 varieties of what are called American cannas; they were raised in Florida, the originator claiming that there is no French or Crozy blood in any of them; they seem to be of the *flaccida* type, but I am afraid that the blooms will not last on the plants as long as those of the Crozy type. There are among them, however, some fine varieties which before the advent of Mme. Crozy would have attracted attention, but not now, for they are hardly equal to Florence Vaughan, Columbia, Chicago and other new varieties. They emphasize the fact, however, that with our fine climate and soil we are going not only to overtake but surpass the French growers in the production of fine new cannas.

At P. Henderson & Co.'s, Jersey City, was a row of the old canna Flamboyant that could easily be distinguished in a large field of assorted cannas for its brilliant crimson color, it is very free flowering and makes one of the best bedding cannas. Golden Rod, one of Henderson's seedlings, seems to be a good bedding variety.

At Dosoris I saw the best grown cannas of the season, they were well bloomed and had fine foliage and good height, and included most of the best new varieties. I also saw there the first pure golden yellow canna, without a spot but the plant showed rather weak, and the flowers were not extra large. It is the first of the pure yellow cannas not of the Premices des Nice type that I have seen. Being interested in the improvement of the canna for decorative foliage I found there a first-class novelty in the way of a canna with foliage so dark that the name Black Beauty describes it well. The edges of the unrolled leaves appeared serrated, forming in the young shoots a regular spiral stairs. The flowers are red and should be picked off to enrich the foliage. When seen it will be greatly admired, for it is certainly a decided acquisition. I also found there plants of *Canna Ehemannii*, which is one of the most elegant of cannas, with massive handsome foliage and beautiful flowers, not of the upright and stiff style of most cannas but drooping and spreading with an independent style of its own, and good color. Every one should grow *Ehemannii*.

At James Dean's, Bay Ridge, L. I., all the cannas were fine. J. D. Cab s was doing remarkably well and showing no fading out of the flower, as happens with us at the west. I was surprised and delighted to see in a field of seedlings from Mme. Crozy what might be called samples of all the late novelties, many yellows in the way of Florence Vaughan, some nearly as well marked as Queen Charlotte, and others in style of Alphonse Bouvier and Chas. Henderson. Insects must be active in fertilizing at Bay Ridge, with us of Mme. Crozy cannas from 50 to 75 per cent come true when raised from seed. Friend Dean thinks our French brothers must have had a picnic raking in good American dollars for seedlings of Mme. Crozy, selected and raised by them every year from pure seed of Mme. Crozy. Mr. Dean has certainly some good seedlings raised that way.

W. P. Simmons' *Canna alba rosea* is the nearest approach to a white canna I have seen; it is a cream shading to rose. Every lady who sees it exclaims "how lovely!" It is a favorite with them for its odd shade, though it does not make as showy a bed as the brilliant reds and yellows. It is a free bloomer but rather loose on the stalk.

In Washington Park, Chicago, Mr. Kanst, the gardener, plants the standard sorts for effect, the beds are just the right diameter for the various sorts and made the best impression of any cannas seen on our trip. He has a light yellow seedling from Premices des Nice named Geo. Nicholson, which makes a fine border for a bed of Alphonse Bouvier. Another seedling the color of Francois Crozy averages from 4 to 9 large heads of flowers on a single stalk and is extra good. Another seedling named South Park is of a pleasing shade of crimson and doing well, but the foliage appeared to me to be diseased; probably the dry summer had been the cause; this season, however, will tell the story. There was also a small bed of Columbia, the Iowa seedling; it was not as fine as when seen at the World's Fair in '93, but it is a good canna. For this season though there is a seedling raised by Mr. Crozy and named Chicago and now being sent out by J. C. Vaughan that has overtaken it, it is a shade lighter in color, blooming freely on small plants and the flowers are equal in size and substance to any of the best new sorts. It has from four to eight good large blooms on each stalk nearly all the time. If it does as well this season as it did last year I would recommend all to try it.

To sum up, the four best and most planted cannas either east or west are, first Mme. Crozy, second Alphonse Bouvier, third Florence Vaughan, fourth Paul Marquant. Charles Henderson is a grand canna, but it seems late in coming into bloom. In Washington Park a bed of it was only starting into bloom when beds

of Mme. Crozy, Alphonse Bouvier, J. C. Vaughan and J. D. Cabos had had the old blooms cut out more than three times, and I am afraid from what I have seen of Queen Charlotte that she is of the same nature; no matter, I should advise every one to test it for its novel markings.

I would also advise all to raise as many seedling cannas as possible for their different uses, some for bedding, others for foliage, for decorations, some for specimen plants, both foliage and bloom, and still other varieties for winter blooming. We should not expect one variety to combine all these qualities, but please do not disseminate any of them unless they are distinct and decided improvements on the standard varieties now in commere.

Davenport, Ia. J. T. Temple.

VINES FOR TRELLISES ABOUT THE HOUSE.

Lots of vines about the house give it a cosy, homey feeling that no naked walled structure can inspire. Now what hardy perennial vines should we use for such a purpose? We have considerable to choose from. There are akebia, wistaria, honeysuckle, clematis, trumpet vine, roses, pipe vine, Virginia creeper, celastrus, grape vine, and some others.

For clinging to the wall we have nothing better than Japan ampelopsis. For other purposes, such as clothing a netting or trellis to shade the piazza the honeysuckle is the best, and in fact it is excellent for covering pillars too. Our illustration, for which we are indebted to the kindness of Messrs. Ellwanger & Barry, shows a vine of Hall's Japan honeysuckle and how well adapted it is for screens. They say of it: "Without doubt the best and most popular of all the climbing honeysuckles. A strong, vigorous, almost evergreen sort, with pure white flowers changing to yellow. Highly fragrant and covered with flowers from July to December; holds its foliage till January. The best bloomer of all."

In building a house we generally fill in or bank up a lot of sandy or gravelly rubbish about the base of the wall, usually part of what was dug out of the cellar. Now what's the use of planting vines in stuff like that? If you want the vines to grow and do well—and you wouldn't plant them if you didn't want them to do that—dig out and remove that old rubbish and fill in with good fresh loam. If you give Hall's honeysuckle, panicled clematis, akebia, and in fact any vine plenty to eat and drink, and room for their roots to revel in, they will repay the kindness very markedly.

GARDEN VIOLAS.

My violas are delightful and much admired; they are little catalogued and it would seem very little known. I have the following sorts, mostly grown from seed sown in cold frame last fall and germinating this spring: *Semperflorens*, *Semperflorens alba*, *Barrensteini*, Hamburgh Forcing, *Italica*, *Laucheana*, Lee's *odoratissima*, Marguerite de Piedmont, Russica, The Czar, The White Czar and Victoria Regina. Inquirer.

New Jersey.

"Creeping Charlie"—Lobelia speciosa.—G. W. M., Philadelphia, sends us a few flowers and writes: "Please tell me the name of the enclosed creeper. I have heard it called "Creeping Charlie." It is *Lobelia Erinus* var. *speciosa*, a tender perennial much used by florists and gardeners for flower bedding, basket and window box work. They generally raise it from seed every year, treating it as an annual, or if the variety is choice it is perpetuated by cuttings or division. It self-sows itself freely in garden ground.

Roses.

CULTIVATING ROSES UNDER GLASS.

Perhaps never in the history of horticulture has there been such a wide-spread love for and interest in any one kind of flower, as is manifested for the rose to-day. So great and universal in this love that several millions of dollars are invested in glass houses, in the vicinity of New York City to meet the demand for cut uses. And it is of this cultivation under glass that I am to write. I like the word *cultivating* rather than the more commonly used *forcing*, for in reality the proper treatment is not "forcing," but merely supplying (as nearly as it is possible for fallible man to do) the best and most suitable conditions for the perfect development of healthy, vigorous growth and therefore beautiful flowers. The knowledge of what these conditions are is in most cases the accumulated result of many years of patient observation and experiment. While this knowledge can no more be imparted than the secret of the artist's touch, and must be acquired by practical work, still there are certain fundamental rules, that if obeyed must bring a fair portion of success.

To begin at the beginning, which is the preparation of the soil, remember that the rose is a gourmand, and requires rich food, and that in abundance. The right method is to gather the best possible sod, the previous fall and pile it up with *fresh* cow manure in the proportions of 3 parts soil to 1 part of manure. Early in the spring turn the mass over, thoroughly breaking the lumps.

When planting time arrives, properly either May or June, fill the benches (which should be provided with ample drainage by leaving spaces of about one-half inch between the boards) about 4 inches deep with this soil, and immediately, while the soil is fresh plant your young roses, which I think preferably should be from 3½ or 4-inch pots, and I believe better results will usually be obtained by amateurs if they buy their plants from some florists making a specialty of their growth rather than to attempt to propagate them themselves. The plants should be set about 14 inches apart, and as soon as planted well wet about the root, but do not at first soak the whole bed, this is entirely unnecessary, and only tends to make the soil sour. This one point of improper watering is probably the cause of more failures than all other causes combined.

Plants are very much like animals in their demand for water, on very hot days they will require lots of it, but on cool, or cloudy days very little, and it does them no harm to be quite dry on such days.

Frequent syringing with some force on the under side of the foliage is necessary to keep down red spider. Prevent green fly by a free use of tobacco stems, and do not let weeds get established.

Pinch off all buds until the plants begin to make strong growth, which is usually in about two months after planting. Give plenty of ventilation, but be careful in case of sudden change in temperature not to allow it to your rose house. When you begin to cut the flowers rigorously cut back to two or three eyes.

In the selection of the varieties to be grown many people make the serious mistake of choosing those sorts they think the most beautiful rather than stop to think whether they are suitable for growth under the condition their house affords. Probably the varieties that will give most general satisfaction, requiring about the same treatment are the following: Bride, white; Bridesmaid, pink; Perle, yellow; and Wootton, red. These can all be grown in the same house and will do well under ordinary condition. American Beauty, Meteor, Kaiserin Augusta, Mme. C. Testout, La France and Mme. Cusin are all very beautiful roses but require more skill in their treatment and are therefore less adapted for amateur cultivation than those previously named.

Common sense and close attention to details, are prime factors in bringing success. Remember that the leaves of a plant are its lungs, the roots its digestive organs, and that on keeping these healthy largely depends the vigor of the plant.

Paul M. Pierson.

Scarborough, N. Y., June 5, 1895.

GROWING ROSES IN THE GREENHOUSE.

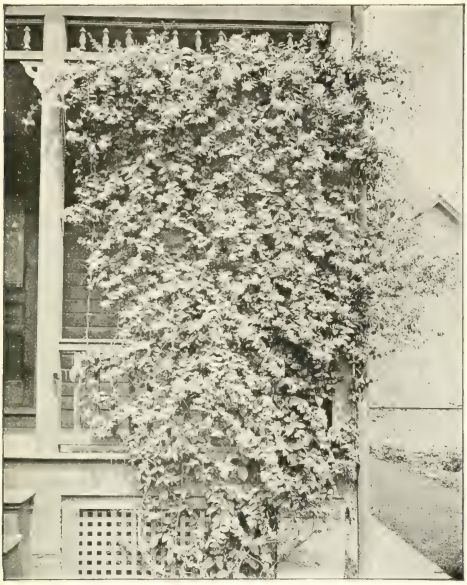
Perhaps my method of growing roses in the greenhouse may be suggestive to some of your readers. I will tell you about it as plainly as I can, and if I do not make myself clearly understood, or shall omit to tell anything anyone is interested in, ask and I shall gladly furnish the information.

The rose house here is 65 feet long, 18 feet wide and three-quarter span and faces south. The glass is double thick, 10 by 14 inch size, and bedded in putty, but on the outside no putty is used, paint only is run down along the edges. The ventilators are two lights deep, hinged at the ridge, and worked by regular ventilating gear. The south side front consists of a 3 feet high brick wall and a one-light high run of glass on top of it; the back wall is of brick and 8 feet high. Inside the house four benches run lengthwise, three of them are each 3 feet wide, and the higher or back one is about 2 feet wide. The pathways are of cement. The heating is by hot water; five 4-inch pipes run along the front in the house, and three next the back.

The soil I use is a yellow loam, 4-inch deep sod cut from a pasture, secured in spring and piled up with a good dressing of bone meal mixed with it. This makes a most satisfactory compost for roses. We replant the house in June, when the old soil is cleared out and fresh compost brought in. Before the new soil is taken in it is turned, broken up, and well mixed. Our beds of soil on the benches are four inches deep, and a small opening is left between the boards in the bottom to ensure good drainage, a most important point in growing roses.

Our rose plants are set out in rows and about fifteen inches apart and we make up and replant the beds every year. But we do not use all young plants, I save the best of the old ones and replant them. In securing them I cut a nine inch square block containing the roots and save this as nearly intact as possible, the rest of the earth is entirely removed. These old plants being larger than young ones are moved a little further apart than they used to be, so as to give plenty of room for fresh soil. They do very well with me, indeed sometimes better than the first year plants. When they are lifted I do not cut them but as little as I can.

We give them as little water as possible and keep them healthy in summer, and when we commence to grow them in fall we dislike cutting them much. Be very



HALL'S JAPAN HONEYSUCKLE

particular to guard against mildew, as that checks them more than anything. At that time—starting time in fall—I always put on a little fire heat to sweeten the air at night and keep it genial and moving, and thus lessen any tendency to mildew.

In hot summer weather we cannot control the temperature as we sometimes would like, but in fall and winter we generally can. Between fall and spring we keep the night temperature as near at 60° as possible, and allow it to rise to 80° in the day time by sunheat. If possible, that is if the weather will allow of it, ventilate the house a little every day.

When the sunshine becomes quite strong in spring we shade the roses a little by painting the glass over with a thin coating of turpentine and white lead. This saves the leaves from "burning," and it can be easily rubbed off in fall with a dry cloth.

Sprinkle the plants overhead every morning except in dull, wet weather; and in bright, hot days in summer syringe the roses both in the morning and afternoon.

In winter we use sheep manure as a stimulant to our roses and find it answers admirably. Most rose growers use cow manure, and with excellent results.

As regards growing roses in pots or on benches for cut flowers, I very much prefer the benches. During the winter months we cut about three hundred good roses a week. GEORGE DONALD.

Fairfield, Conn., June 6, 1895.

HARDY GARDEN ROSES.

We have abandoned the culture of tender varieties, as with all our methods they die so frequently through the winter that we are satisfied with the H. P roses only. We have also the *setigera*, *rugosa* and *Wichuraiana* roses. Prairie Queen and Baltimore Belle are the most reliable of all climbing roses we have, and Mme. Plantier the best hardy white rose. We have so large a variety of beautiful perennial and annual flowers we scarce miss the tender tea, Noisette, etc., roses and none but a *rosarian* can do justice to so attractive a subject. ISAAC HICKS.

Westbury Station, L. I., June 2, 1895.

SINGLE ROSES.

The different varieties of *Rosa rugosa* are at their best. The Ayrshire and other varieties of *R. repens* are in full flower. The musk rose (*R. moschata*) has whitish flowers that have a delicious musky odor. The Austrian briar (*R. lutea*) has deep yellow blossoms streaked with red; *R. rubritolia* with reddish purple foliage and small pink flowers; *R. Caucasica* has white or pale red blooms and *R. gallica*, beautiful pink red ones and all are now in bloom. *Rosa multiflora* will be at its best in two or three days. J. DUNBAR.

Rochester, N. Y., June 7, 1895.

ROSA WICHURAIANA.—C. L. M., Milwaukee, writes: "*Rosa Wichuraiana* here is perfectly hardy standing without mulching. I don't think anything of it, as it would be completely overgrown with grass and weeds. It is a free grower and has very pretty foliage." Then tie it up to a pillar, or on a trellis, or let it grow down over a bank, or spread over rocks. For certain uses we have nothing better than this rose.

MULCHING ROSES IN SUMMER.—Mulching the ground in summer is helpful to roses, it keeps the soil cool and open, conserves moisture and catches and holds the water when it rains. But what to use as a mulch is a vital question. Salt hay, sedge, fern, or other littery stuff will answer very well, but we don't care much for lawn mowings alone, they lie so close, mixed with loose litter, however, they are all right. Fresh, rank, littery manure at once suggests itself as a mulch, and as roses are so fond of cow manure strawy cow manure would appear to be the mulching *par excellence* for roses. But it isn't. It certainly is a perfect mulching in one sense, and a store house of food as well, and we like to use it in winter. As a summer mulching, however, we have had pretty positive experience of its harm, in so far that it is to May bugs a very attractive place to breed in or under, and that means that the larvæ ("white grubs") have got to be fed on the young roots of the rose bushes. Cow manure more than any other kind seems to attract these beetles. In the open ground the old beetles dig some inches deep into the earth to oviposit; but under the mulching they scarcely go half as deep. Several years ago we had a fine bed of roses, and wishing to treat it properly mulched it in spring with fairly clean cow manure. In mid-summer our attention was called to some grubs about the roses, and on examination we found they were young white grubs—not a few but in thousands. To leave them there meant ruin to the roses, so we removed every bit of the mulching and about two inches of soil. And we learned a lesson.

ROSA GRANDIFLORA is a gem among roses. It is of compact habit but vigorous growth, and bears a great profusion of large, showy, white, single flowers. It came into bloom May 20, before *rugosa* even, and by the end of the month it was covered with blossoms, forming one of the most beautiful and marked shrubs in the garden. By the time the rose bugs came its flowers had all dropped. The plant is perfectly hardy with us. And its blossoms as cut flowers have kept in good condition on our table for several days; the buds that were unopen when cut opened full wide and beautiful after the sprays had been set in water. This rose is said by Loudon to be a native of Siberia, and introduced to cultivation in 1818.

THE ROSE-BUG, or properly rose-chafer (*Macrodactylus subspinosus*) appeared here this year, June 2. It is very prompt in coming every year, always during the first few days of June. On the first day we found it on *Magnolia hypoleuca*, *M. parviflora* and *M. Watsoni* blossoms only, the next day it was more generally distributed, *Rosa rugosa alba* getting a big share of attention, and now they are everywhere. But so far they are less numerous than they have been for some years past. What can we do to destroy them or drive them away? We have tried a good many ways and find the kerosene bath the best of all. Take a tin or zinc basin—an old wash hand basin, a milk pan, a tin pail or kettle, in fact any shallow vessel with a wide mouth will do—and pour an inch or two deep of water into it, then about as much kerosene; of course all kerosene is as good or better, the water is simply to give it bulk, it lies at the bottom and the kerosene floats at

the top. Now take it out into the garden and with one hand hold it under the infested flowers and with the other shake the bugs into it. The kerosene kills them. When the pail is getting full throw out the bugs, add more kerosene and go picking again. There is very little trouble attached to this way of catching and destroying the pests, and it is sure death to the bugs. Give the small boys the job. One can hold the pail while the other shakes the bugs into it, then pay them 10 cents a pint for all they catch. The Fourth of July is near at hand and the boys want firecrackers and fun and will now work with a will for a little money to help them celebrate.

THE BEST PILLAR ROSE, without any exception, is *Rosa Wichuraiana*, the Japanese trailing rose. It covers the pillar with a heavy overlapping spray of glossy green leaved branches from close on the ground up, and produces panicles of small single white flowers after most other roses are out of bloom, and these are succeeded by crimson hips that hang on the plants all winter. The plant is not subject to mildew nor insect pests, so far as we have seen, at the same time we do not claim for it immunity from these evils. It throws out young shoots from the root that grow twenty to thirty feet in a year, but they never will climb of their own accord, they have got to be tied up, for their nature is to spread out flat on the ground. The plant is hardy, not even a tip was injured at Dosoris last winter, although it was not protected in any way. A year ago we planted one of these roses against a pillar; before the summer was over it threw up several strong shoots; we tied these up to the post and arched them over to another post, letting them droop down the same, which they did to the ground, the tips taking root there like a black cap raspberry, so now we have in one year a very handsome arch of roses from one plant. Mr. Wilmer Atkinson (editor of the *Farm Journal*) when here the other day said "that rose growing in that way is, alone, worth coming from Philadelphia to see."

ROSE SUCKERS—CUT THEM OUT.—Roses are propagated in two ways ordinarily, namely, from cuttings, when they are called own-root plants, and never sucker, and secondly, budded on some other kind of rose as on a wild briar or Manetti. Every sprout that comes up from an own-root plant is precisely the same as the mother plant and should be retained and encouraged in growth. Budded plants, however, are apt to bear spurious suckers, that is sprouts from the root part under the point of union with the cion. If these are left to grow they will soon outgrow the tame rose and absorb the sustenance that should go to its support, after a while killing it. How are we to know whether our rose bushes are own-root or budded plants? Unless they have been apprised of the fact, inexperienced people cannot tell. So keep a sharp eye on your beds and look out for suckers. These suckers always spring from the ground and have a thrifty wild rose look about them, with sharp spines and a reddish tinge to them, and usually seven or more leaflets to the leaf, and they are quite distinct in general appearance from the tame rose growing from the same root. If you see these suckers cut them out close to the old root. Don't cut them off above ground, for they would immediately spring up again, and don't pull them out lest in doing so you may injure the root from which the sucker has started and which sustains the rose bush you wish to preserve. Cut out these suckers and spare them not.

SALT WATER IS BAD FOR ROSES.—We have large beds of roses—hybrid remontants, rugosa, multiflora, sweet briar, and other hardy sorts—near the edge of the sea wall, and protected from the glare of the salt water by a hedge of matrimony vine, celastrus, and periploca. Unusually high tides may flood part of these beds; such tides may occur once or twice a year or may be not more than once in two years. Should such a tide occur in fall, say November or December the damage done to the roses is only slight, but should it happen in spring, say between March and May, the bushes will be severely injured, in fact most of them will be killed. On the other hand our common wild rose (*Rosa Caroliniana*) doesn't seem to mind a salt water bath, in fact it is naturalized along the seabanks where several tides a year reach it.

SOIL FOR ROSES.—Any good, ordinary soil will grow roses; one that will grow good strawberries, pears, sweet corn or potatoes will also grow good roses. But perhaps we may get the best flowers from a deep, rich, friable loam, a little inclined to stiffness. If you haven't got such a soil don't worry in the least, make the best of what you have and success will attend you. Position has much to do with successful rose growing. For best results the rose bed should be out in the full sunshine, but sheltered by neighboring buildings, fences, rolling land, etc., from sweeping winds. If the ground is inclined to be wet it should be drained, and roses should never be planted where a pool of water is apt to lie in winter, or after a thunder shower in summer.

IN CUTTING ROSES don't spare them, especially H. Ps., for if the stems are pretty well cut back strong laterals are apt to be produced during summer that will give us a good scattering of flowers towards fall. Bourbons, as Mrs. Degraw, Hermosa and Appoline, may also be cut freely with good results. But in the case of moss roses, Persian yellow, Madame Plantier and prairie roses, that nothing would induce to bear a second crop of flowers, nothing is gained by severe cutting, unless it be symmetry of the plants.

AGNES EMILY CARMAN ROSE.—We have two nice bushes of it in full bloom, and they are distinct and pretty. It is a rugosa hybrid, with strong rugosa marks as regards foliage and earliness, the blossoms are semi-double, Jacqueminot crimson and pretty in the bud, but not so attractive when open. It must be a very hardy rose, for it survived last winter entirely unprotected and without the least injury so far as we can see.

ROSA RUGOSA and its hybrid Madame Georges Bruant have been winter-killed to the ground in some places in my grounds, in other parts of my garden they are all right. *Rosa rubrifolia* came through splendidly as did also Harrison's Yellow. The Seven Sisters in a sheltered position with only a vine of thunbergia thrown over it is alive and well.

Chicago. W. C. EGAN.

The Greenhouse.

THE GREENHOUSE IN SUMMER.

The greenhouse in summer can be made a place of beauty and interest. Some of the reasons why it is not more generally so are perhaps owing to the counter attractions of beautiful, well kept grounds, hardy shrubs, and flower beds; the annual summer exodus of the proprietors to Europe, and consequently the concentration of the gardener's efforts towards the production of fall and winter blooming, and decorative plants.

Many of our greenhouse plants which are interesting just now are brought into the shaded stove houses, which are generally cooler in summer than the bright unshaded greenhouses. This gives us working room in what might be called the cultural houses, that is to say houses in which plants are not arranged for effect, but for the production of cut blooms and flowering plants for winter. In these latter houses benches must be repaired and refilled with soil, roses must be planted therein before the 4th of July; dwarf chrysanthemums will occupy a good deal of the benches, and in general such plants as will stand direct sunlight in the greenhouse.

In June we take our large palms, etc., out of our winter garden greenhouse, and place them in a partially shaded situation around the dwelling house. This gives us room to display the remaining plants to advantage. Our principal ornamental plants in summer are tuberous begonias, Rex begonias, gloxinias, fancy leaved caladiums, *Allamanda Schottii*, and *A. neriifolia*; such ferns as *Adiantum Farleyense*, *A. macrophyllum*, *A. cuneatum*, and the beautiful lace-like fern *Gymnogramme schizophylla*, dwarf palms such as *Geonoma gracilis*, *Acanthophœnix crinita* and *Cocos Weddeliana*, ornamental foliage plants such as bertolonias, and the beautiful, easily grown *Campylobotrys Ghiesbreghtii variegata*, known also as *Hoffmannia* and *Higginsia*, *Maranta Mackoyana* and *Massangeana*, *Alocasia Lowi* and *A. macrorhiza variegata*, *Anthurium Andreanum* (which is nearly always in flower), and *A. Scherzerianum*, etc., the odd and interesting *Monstera deliciosa*, the variegated pine apple (*Ananassa sativa variegata*), and *Æschynanthus Lobbianus*, a beautiful pendulous basket plant with rich scarlet flowers, and in general, those plants whose foliage is of such delicate texture that it will not withstand the full blaze of sunlight or searching winds.

Tuberous begonias we grow from small bulbs purchased from some reliable grower who advertises in the horticultural press. If grown from seed sow it early in December. We pot the bulbs in March in 3-inch pots, and shift them as required till we finally pot them into 7-inch and 8-inch pots. They are of very easy culture, the principal points are: don't procure large, hollow-crowned bulbs, as soon as the roots touch the sides of the pots, repot them, draining the pots well; give them an occasional fumigating to keep down thrips, give them plenty of water, never let them get dry, and let the compost consist of good turfy loam, leaf mold or well rotted manure, with a good admixture of sharp sand. They require partial shade after May 1.

We have over twenty varieties of Rex begonias. We root them from sections of the leaves put in the cutting bench in January. The chief requirements of this class are heat, shade and moisture. Gloxinias we root from leaves put in flats of sand about the 15th of July. When they are in flower we select leaves from the most desirable sorts and put them in the sand in an upright position. They soon root and form a bulb in the sand, and when the leaf dies gradually

THUNBERGIA LAURIFOLIA.

down the bulb is quite large. We get one bulb from one leaf. Keep the bulbs over winter in a dry, moderately cool place; if kept in a dry hot place they will shrivel. Pot them about the middle of March in 3-inch pots and as soon they require it, finally into 5-inch or 6-inch ones according to the size of the plant.

In the greenhouse in summer keep the plants free from insects, the atmosphere moist, and at the same time buoyant, in cold, rainy weather light a little fire and ventilate the house; give the plants plenty of room, and pay attention to their wants. WM. FITZWILLIAM.

Baronald, Orange, N. J.

THE LAUREL LEAVED THUNBERGIA.

Among the many winter-blooming greenhouse vines worthy of cultivation none is easier to grow or more lavish of its blossoms than is this Indian plant. Its flowers are large, showy, pale purplish blue in color and borne in the greatest profusion in clusters as shown in our illustration, which is engraved from a photograph of a cluster taken at Dosoris last winter. But notwithstanding its great beauty for greenhouse decoration, for cut flowers it isn't of much worth, it wilts so soon.

We grow it in a big box filled with good soil and set under the bench, allowing the vine to come up behind the bench, and spread on to wires run along under the glass. They need some attention to keep them from twining themselves into ropes and inextricable nets, for they grow fast and many feet long. After they are through blooming we cut them well back and later on thin the shoots and regulate them. We practice no period of rest so far as moisture in the soil is concerned, keeping the house quite cool till the end of November, which we do for other purposes, gives the plant rest enough.

COSMOS—RAINMAKER PINE NEEDLES.

1. OUR COSMOS plants are 28 inches high and June 1 were shifted from 4½ to 6-inch pots, and were pinched back once when a foot high. Kindly state in GARDENING how often they should be changed and what sized pots they will require when brought indoors in October. Will it be better to pinch them back occasionally? We are getting to

2. RELY UPON GARDENING more and more. It is simply invaluable. Why, the two items about

3. THE RAINMAKER NOZZLE AND THE MICHIGAN WEEDER, were worth the subscription price for the year. That nozzle is just splendid. We are trying

4. PINE NEEDLES from the forests for mulching our auratum lilies, cannas, tuberous begonias, carnations, etc., this season and I believe they are preferable to anything else we have used. F. C. C.

Bath, Maine.

1. If you repot them as often as they would take it, and give them all the good soil and water they would need before October, each plant would fill a butter tub. Better pinch them in a little every ten days till the end of August, put a stout stake to each plant and tie the main stem and heavy branches to it, for they are easily broken at the joints; repot into an 8 or 10-inch pot using 2 parts loam and 1 part manure and pot very firm, leaving nearly two inches empty at the top for water; plunge the pots to near their brims in an open sheltered place out of doors, and wide apart, and water them abundantly. Every week lift out the pots so as to break away any roots protruding through the hole in the bottom, and put them back in place at once. When the pots are filled with roots give the plants manure water about twice a week. If you hadn't sown the seed till May you would have had as good plants in October as if you had started them in March.

2. We appreciate your confidence. GARDENING is the voice of actual, practical experience.

3. Which goes to prove that when GARDENING tests a thing and then recommends it you can depend upon what it says.

4. Pine needles make an excellent mulch for many things, both under the plants in summer and over them in winter.

WINDOW PLANTS.

G. C. G., Brooklyn, N. Y., being an invalid is confined to his room, which is a south facing one, and he is very fond of plants and wishes to grow some in his windows. He has tried many flowering plants, but all have proved unsatisfactory to stand the hot sun. Begonias, gloxinias, primroses and geraniums have not been successful there. He would prefer foliage plants and succulents, and would like to raise them from seed. The Little Gem calla has not behaved as it should have done.

NECESSARY CONDITIONS for the welfare of the plants: Don't let the warm sunshine strike the pots, else it is apt to scorch the roots next the outside. Cardboard or chip cases to set the pots into, or a board between them and the sunshine will save them. Let the pots have perfect drainage. Use rich, turfy, porous soil, and give water unstintedly; indeed, in the case of sturdy well rooted plants it might be well to set the pots in saucers kept filled with water. Too little water and letting the roots get scorched by the hot sunshine on the pots are the two commonest causes of failure with window plants.

PLANTS FROM SEED.—It is a little late to start them now. As vines try *Maurandia Barclayana* and Lobb's nasturtium and cobæa from seed, and cinnamon vine, Madeira vine and *Ipomœa paniculata* from tubers. As lesser plants try globe amaranths and *Vinca rosea* (both rather too late for this summer), *Gaura Lindheimeri*, French marigolds, petunias, eschscholtzia and portulacca from seed. And get young plants, raised from cuttings, of rose and oak leaved geraniums, Cape plumbago, acalyphas and lantanas.

FINE FOLIAGED PLANTS.—We haven't many that are appropriate. As a vine the variegated Japanese hop grows bravely. Of shorter stature we have rubber plants (*Ficus elastica*), acalyphas, and and succulent euphorbias.

SUCCULENTS.—We cannot advise you to raise these from seed. *Mesembryanthemum spectabile* and *Othonna crassifolia* both make an appropriate and pretty fringe to hang down over the sides of pots or boxes, and both are pretty succulents and easily raised from cuttings.

GARDENING

WILLIAM FALCONER, Editor.

PUBLISHED THE 1ST AND 15TH OF EACH MONTH
— BY —
THE GARDENING COMPANY,
Monon Building, CHICAGO.

Subscription Price, $2.00 a Year. 24 Numbers. Advertising rates on application.
Entered at Chicago postoffice as second-class matter.

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All communications relating to subscriptions, advertisements and other business matters should be addressed to The Gardening Company, Monon Building, Chicago, and all matters pertaining to the editorial department of the paper should be addressed to the Editor of GARDENING, Glen Cove, N. Y.

GARDENING is gotten up for its readers and in their interest, and it behooves you, one and all, to make it interesting. If it does not exactly suit your case, please write and tell us what you want. It is our desire to help you.

ASK ANY QUESTIONS you please about plants, flowers, fruits, vegetables or other practical gardening matters. We will take pleasure in answering them.

SEND US NOTES of your experience in gardening in any line; tell us of your successes that others may be enlightened and encouraged, and of your failures, perhaps we can help you.

SEND US PHOTOGRAPHS OR SKETCHES of your flowers, gardens, greenhouses, fruits, vegetables, or horticultural appliances that we may have them engraved for GARDENING.

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A MYSTERIOUS GROF.

"Novice," Oconomowoc, Wis, writes: "Last fall my neighbor, the celebrated amateur gardener, H. H. Shufeldt, planted out a lot of bottles, all kinds, soda pop, lemon pop, etc. I don't know what he expects to raise from them—probably his brother-in-law, Mr. W. C. Egan, does—but what I'd like to know is whether spring or fall is the best time to start them. Mr. John Thorpe, who has been at work on the place, does not seem to be posted on the subject."

Undoubtedly that fall planting was just before Thanksgiving. With equal consideration your neighbor has, probably, planted another set now, hoping that you and his relative may dine and rejoice with him on the glorious Fourth. On the morning following even a "Novice" may appreciate a soothing soda.

MAGNOLIA PARVIFLORA.—What a beauty it is, and so far, in the case of ten or twelve year old plants it shows no sign of taking the Japanese die-back.

FOUR SCORE YEARS.—"Although four scores have been written on the dial of life, love for trees, flowers and fruit know little abatement.

Thy cordial friend, ISAAC HICKS."

So writes our esteemed neighbor the veteran nurseryman of Westbury. What a pure and beautiful, and deep-seated love that is. Aye, and we admire, and honor, and love the four-score veterans.

GREEN-FLOWERED NARCISSUS.—*Gardening World* tells us that the blossoms of the double-flowered *Narcissus poeticus recurvus* are being tinted green by artificial means, and there is a craze for such monstrosities. Our esteemed contemporary condemns the practice, however, and rightly asserts that "coloring of this kind should be left to the manufactures of artificial flowers."

CLEMATISES AS POT PLANTS.—At the leading spring flower shows in Europe, pot grown clematises of the early large flowered kinds are quite a feature. They are generally grown trained around some wooden or wire stakes or a balloon trellis, and they force easily, bloom nicely and are quite showy. Trained in a less formal way these clematis are also esteemed for greenhouse decoration.

HYBRIDS OF CLEMATIS COCCINEA.—Messrs. Jackman & Son of clematis fame, exhibited some striking hybrids of *C. coccinea*, the other day. The male parent was Clematis Star of India. The seedlings in habit, blooming, and hardiness somewhat resemble *coccinea*. The best of them were Duchess of York, pale blush; Sir Trevor Lawrence, deep crimson red; Countess of Onslow; paler than the last; Duchess of Albany, rose purple; Grace Darling, rosy carmine, and Crimson Beauty.

SINGLE CHRYSANTHEMUMS.—The London *Garden* has a colored plate of Miss Rose and Mary Anderson, both blush colored very pretty varieties. Of course they are beautiful, and as a rule the plants are healthy and exceedingly copious, but the people won't take them. Some years ago hearty efforts were made to boom and popularize them in this country, but no amount of bolstering would sustain it. The people have decided very emphatically in favor of double chrysanthemums.

THE HORTICULTURAL EDUCATION IN ELEMENTARY SCHOOLS' BILL introduced into the House of Commons, England, is according to the *Gardeners' Magazine*, "intended to provide in public elementary schools of horticultural subjects. * * The following are the subjects for instruction: Fruit, flower, and vegetable growing; poultry, bee, and pig-keeping, budding, pruning, planting and propagating; rotation of garden crops; nature and properties of soils; use of manures; knowledge and choice of seeds; structure and life of plants; action of birds and insects on crops; choice and use of simple tools; packing fruit, vegetables, etc., for market." We pity the children.

INCARVILLEA DELAVAYI, a new tuberous rooted herbaceous perennial from China, was exhibited recently in London, when it attracted much attention and was awarded a first-class certificate. The flowers are large, showy, bignonia-like, and bright rose in color, with yellow throat. Two years ago it was sent out as a seedsman's novelty. It is not at Dosoris, so we cannot speak of it from personal experience. But its near relative *Incarvillea Olgæ* from Turkestan, also a hardy herbaceous perennial, is perfectly at home with us, and has lived in the same spot entirely unprotected in winter for a dozen years. Still as an ornamental plant we do not regard it as first-class.

DEUTZIA SCABRA is in full bloom at Dosoris just now (June 10), and has been since the first of the month, and a prettier little bush it is hard to imagine. The flowers are small, white, wide open, starry in appearance and borne in short panicles of twenty to fifty spiræa-like blossoms. Last year the plant was between four and five feet high, but unfortunately it isn't very hardy, and it got cut down by the winter to about two feet. In gardens and catalogues *Deutzia crenata* is often called *D. scabra*, but in leaf, flower, habit and time of blooming they are very distinct species. Even in Nicholson's Dictionary of Gardening *D. scabra* is given as a syn. of *D. crenata*. But when Mr. Nicholson was here two years ago and saw the gehuine *scabra* he admitted its identity, and has since written for cuttings of it.

JADOO FIBRE is something new in the way of potting soil. We are told that it is peat moss that has been boiled with certain chemicals, and then fermented after being boiled. We got a bag of it on trial the other day. It looked to us exactly like well broken up and moistened German peat moss, such as we use several tons of a year for bedding the horses within box stalls. It is spongy in texture, free from smell, light in weight compared with the same bulk of loam, and it doesn't soil the fingers but very little in handling it. Of its practical value we cannot speak from experience, for although we have many plants now growing in it by way of experiment, and looking thrifty, we have not had it long enough to be able to speak positively as regards its merits. But we think well of it. People who live in cities, especially in thickly populated parts, often have difficulty in getting soil for their potted plants, and some are deterred from increasing the number of plants they grow in their rooms and windows because they have no good soil to pot them in. Jadoo fibre is meant to supply this want. It is simply a prepared potting soil and is used as such.

THE HORTICULTURIST'S RULE-BOOK.—We have received from the publishers, Macmillan & Co., New York, the third edition of this handy little book. It contains about 300 pages, 7x5 inches, and costs 75 cents. There are no illustrations in it. Its author is Prof. L. H. Bailey of Cornell University. It contains a great deal of useful information, given in a concise, orderly way, and also a good index, which makes the book a valuable one for reference. Among the subjects it includes are insects and the best known means of destroying or repelling them, plant diseases with preventives and remedies, how to prevent rabbits and mice from injuring trees; how to make and use grafting wax; how to make and use protective compounds for various purposes, also paints and glues, and seed and computation tables. Some attention is given to greenhouse and window garden work; the keeping and storing of fruits and vegetables, and the like, together with seed and planting tables, and certain rules as regards horticultural subjects. The weather, garden literature, analyses, etc., also receive attention. Altogether it is a valuable and desirable book, containing a great deal of everyday pertinent information.

The Vegetable Garden.

THE VEGETABLE GARDEN.

Everything is in full and vigorous growth; weeds and crops alike are on the rush, and we in our effort to destroy the first and promote the growth of the last have to hurry up too. There is no more danger from spring frosts; heat and drouth are what we now have to consider.

VEGETABLES IN USE.—Young carrots that were sown in hotbeds, asparagus, spinach, cauliflower, lettuces, radishes, turnips, beets, rhubard, onions, peas, chives, parsley, cucumbers from frames and indoor tomatoes.

ASPARAGUS.—Stop cutting now from beds under three years old, and about the end of the month stop cutting from all beds. As we have peas in plenty now, and soon will have snap beans, we can afford to let up on asparagus.

ARTICHOKES, GLOBE.—Cut off every head that is big enough to use; the closer we cut the longer the crop lasts.

ARTICHOKES, JERUSALEM.—Confine the plants to their respective hills and pluck up every out of place straggler. Run the cultivator pretty deep between the rows to unfasten the ground that it may catch and hold water when it rains. In a few days the plants will be so tall we cannot cultivate among them.

SNAP BEANS.—Sow a row of green and of wax beans at least once a fortnight up till the middle or end of August.

LIMA BEANS.—It is time enough to sow yet; indeed if sown now they will be in good pod by the 15th or 20th of August. Don't let those already upsprawl over the ground; give them a hitch on to the pole and a tie with a string; they will then take care of themselves.

BEETS.—Thin out young ones in the rows to let those that are left bulb better and quicker; and sow a few more rows for succession. Our earliest sowings have now roots some two inches through.

BRUSSELS SPROUTS.—We expect to get our main crops planted out about the middle of the month, but we would not hesitate to plant any time up to about the 4th or 10th of July. They take a long season, however, and as they don't "bolt" or burst their heads by early planting as a cabbage would, we like to plant them early enough so that we can get good sprouts in October, and have a steady supply from that time up into the following April.

CABBAGE, CAULIFLOWER.—We sowed our stock of savoys, winter cabbage, a full crop of cauliflower and some extra Brussels sprouts, June 6, in rows 15 inches apart. This gives them plenty elbow room if we are delayed in planting them. If thick, thin them a little, and stir the ground well among them. We will sow more cauliflower about the first of July. Set out the plants of former sowings whenever you have the ground to spare. The end of the month will be time enough to sow kale.

CARROTS.—Thin late sowings. If they come up thick in the row and are left unthinned they make very poor roots. About or soon after the end of the month when we get a good rain dig a piece of ground and sow the main winter crop of carrots.

CORN.—Put in a sowing of two or three kinds once a fortnight till about the fourth or twentieth of July according to locality.

CUCUMBERS.—Sow a few fresh hills every fortnight till the end of July. As soon as the cucumbers come to fair using size pluck them off; the vines are all the better for it and last in bearing condition longer.

CELERY.—We prepare some long beds in the frame ground, and prick off the young celery plants into them about 4 inches apart each way. By shading them a little and watering them liberally we can let them stay in these beds till the middle of July or later, and then have fine stocky plants to set out. When it is a question of only a few hundreds, however, it would be better to sow thin and then thin out the plants a little. If the plants are thick in the beds thin them a little, and keep them thoroughly well watered. Just as soon as the ground is ready for them have them planted out.

EGG PLANTS.—Don't let the potato bugs eat them up. Hand picking is the easiest way of getting rid of the pests on egg plants. Take a tin basin with a little water and a little kerosene in it and shake off the bugs, old and young, into it. The kerosene will destroy them.

ENDIVE should now be sown for fall use, and in a week or ten days for winter use. Otherwise treat as you would lettuces.

HORSE RADISH.—Cut the flower stems on the old plants down to the ground, but encourage a good leaf growth.

LEEKS should be transplanted into rows as one would young onions in April or May. Draw a deep furrowed row as for sowing beans in, then lift the young leeks and shorten their tops and roots a little, and dibble them into this row four or five inches apart. Big leeks are not as desirable as middle sized ones.

LETTUCES.—A little and often is how we have to sow and plant out these now, and the coolest and moistest ground on the place has to be chosen for them. Before sowing or planting soak the ground well with water some hours ahead, then fork it over, level it and line it off, and plant. For the next six week it would be well to sow thinly in rows, and then thin out the plants six or eight inches apart and let them stay there to head.

MELONS.—Between cut worms under ground and cucumber bugs above melons have a hard time. but by keeping a constant watch on them we manage to save enough. Keep them dusted overhead with slug shot, and a little bran mixed with arsenic and sugar, say half a teaspoonful in each hill, is a bait for the cut worms. But we don't trust altogether to this; whenever we find a plant cut over we search for the worm and kill it; it always stays close by a little under the surface of the ground. Hoe the ground about the plants and encourage the plants in growth.

OKRA.—Sow a few more seeds at intervals of about three weeks.

ONIONS.—Pick the seed heads out of sets onions. The maggot was so bad among our spring sown onions that we lifted a lot of plants and transplanted them. They look weak. Those transplanted from the greenhouse are not nearly so maggoty as those sown out of doors. The season of the maggots will soon be over now though.

PARSLEY.—Keep the flower stems cut out of the old plants. As soon as the spring sowing is large enough for use, dig up the old roots and throw them away. Any time this or next month a frame may be prepared and parsley sown in it for next winter.

PARSNIPS, SALSIFY AND SCORZONERA.—Thin out the seedlings in the rows to a few inches apart, the parsnips more so than the others.

SPINACH, like lettuce, is a hard crop to manage in midsummer, but by sowing a little and often in the coolest and moistest ground we have we manage to have it.

PEAS.—We gathered our first peas on the 6th inst. They were First of All and sown March 25. Alpha sown the same day, both on warm dry land, was fit for picking on the 9th. We continue to sow peas for succession up till the middle or 20th of June, but on account of mildew it is useless after that, for we seldom pick peas after July 20 or 25. Henderson's dwarf hum comes in then to take their place. In August we begin again to sow peas for picking in September and October. Only early peas are sown in August, and about the most certain are the round O'Rourkes.

NEW ZEALAND SPINACH.—See page 286.

SQUASH for winter if not already sown should be put in now; bush squash, both crookneck and custard, we sow from the middle of May till the first of July, say in two or three sowings.

RHUBARB.—Cut away all flower heads.

RADISH.—Sow a little and often in cool moist ground.

TOMATOES.—It is now a matter of training. The average farmer lets the plants spread flat on the ground, and he gets lots of fruit; some train them over a low trellis to keep them off the ground; others tie them up as single stemmed plants to stakes, and limit their bearing to five or six bunches. But no matter how we treat them they are apt to fruit abundantly.

TURNIPS.—Keep putting in a row or two once a fortnight till August, when we should sow a full crop for winter.

PREPARING THE GROUND FOR SOWING.—In hot, dry summer weather sowing vegetable seeds is a precarious job; we may put the seed in the ground, but it won't be likely to germinate till after rain comes, in fact it sometimes gets so much scorched in the ground as to have its vitality killed. Those of us who *must* keep up a continuous supply of fresh vegetables have got to find means of starting our seeds and setting out our young plants no matter how hot or dry the weather may be. We do it in this way: First clean off the ground and ruffle the surface enough to get it to hold water, then give it a thorough soaking of water, not only enough to penetrate the surface, but to soak down a spade deep. Let it alone over night, then fork it over next morning and rake it level. Now mark it off, sow the seed and shade the rows with tilted-up boards, spruce branches or some excelsior, till it is time for the seedlings to appear. For hills of corn, melons, cucumbers, instead of soaking all the ground, we mark out the hills, then throw a good forkful of dirt out of each, and fill the hole full with water. A few hours after it soaks in, the ground is mellow enough to work, and the hills may then be forked up and sown, and an old shingle laid over each one, but tilted up a little to shade it until the seedlings appear.

PREPARING THE GROUND FOR TRANSPLANTING is much the same as for sowing. Take cabbage for instance: In a field it would be impracticable to water the whole field broadcast before plowing it as we would a small garden patch before digging it; we would plow it and harrow it off level, then mark it, and with a hoe chop out a hole where each plant was going to be set, then fill this hole full of water. In the afternoon, say after 4 o'clock, we would plant the cabbages in the soaked holes, and after planting give another good watering too. The first thing in the morning we would pull a little dry dirt over the wetted hole with our hoe to prevent baking and cracking of the soil and hasty evaporation of the moisture.

GREENHOUSE TOMATOES.

We have received a couple of ripe Ignotum tomatoes from Mr. M. Barker of Cornell University with the following note:

"Sample of Ignotum tomatoes grown under glass by the students in the horticultural department. * * Plants four feet high, grown to a single stem, in bearing since middle of May, each producing from 6 to 10 lbs. of fruit. The plants were grown from cuttings."

They were nice, plump, well ripened, high colored tomatoes, weighing together 17¾ oz. It is a very easy matter to grow tomatoes under glass and have an abundance of ripe ones after March, but more difficult to get them in good condition during the three winter months. Raising early tomatoes in the greenhouse has become a satisfactory and remunerative branch of commercial gardening, for no matter what we get up from the south or import from Bermuda or the West Indies, good quality, home produce will always lead in the market. And it is the same with cucumbers, lettuces, radishes, cauliflower and parsley.

The Ignotum is a fine tomato and we always grow a lot of it for summer use, but for greenhouse work we prefer Lorillard or Ladybird because of their firmer skin. Raising plants from cuttings is common practice in the case of those required for fruiting in winter. We regard the plants as being shorter and stockier than those raised from seed, and they set fruit quicker. Restricting to a single stem and three to four bunches of fruit is a common practice in gardens both indoors and out, the impression being that we get larger and finer fruit in the greenhouse than from unrestricted plants. When we were connected with the London market gardens, over twenty years ago, the tomatoes were grown to single stems tied up to stakes set 3 feet apart each way, and to carry three to four bunches of fruit apiece. The only partly unrestricted plants were those we pegged against the south side of spent mushroom ridges. But the climate compelled this.

The great trouble with greenhouse tomatoes in winter is leaf disease. If we could only keep the foliage of the plants full and healthy from the ground up till the fruit should begin to color greenhouse tomatoes would be common enough; the setting of the fruit would be only a secondary consideration. By a discriminate, intelligent and persistent use of fungicides we are partly able to cope with the disease.

We are glad to see that the Cornell students are being taught something practically useful. We look upon them as young men of brains interested in their work and anxious to master it, and from our knowledge of practical horticulture and garden workmen we expect better results from them than from common day laborers, who are the average workmen in other gardens.

MUSK MELONS.—In a test of 12 varieties I made in 1892 the Emerald Gem led in point of quality, then came the Acme or Baltimore, Golden Netted Gem, Pineapple, Jenny Lind, Surprise, Early Hackensack, Hackensack, Bayview and Banana (variable, some specimens being choice, others poor). The Shumway New Giant and Delmonico were the poorest. S. L. A.

Long Island.

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The Fruit Garden.

EARLY BLOOMING GRAPES ESCAPE THE ROSE BUGS.

I have noticed that some of the earliest ripening grapes on trellis bloom so early that the fruit is formed before the rose bugs arrive, and I have found that these insects do not eat the little grapes, while other varieties not in such haste to blossom are quickly despatched. If such is the case in other places would it not be an advantage to beat the bugs by planting such varieties? The Herbert, most forward the last year, first drew my attention to the subject and I will note other kinds this summer. For many years we have all available places in our buildings planted with grape vines, and through this protection they commence to bloom earlier than those on a trellis, and are unmolested by the bugs, and the fruit ripens earlier and is generally better.

ISAAC HICKS.

Westbury Station, Long Island.

THE BURBANK PLUM.

This is one of the Japanese family, and like most of its class wonderfully productive. I set out a specimen tree in the spring of 1893, two years old from the bud. The second year, the summer of 1894, it bore a few plums. This, 1895, at this writing, May 3, every part of the little tree it literally loaded with buds, just ready to bloom. The fruit is of good quality, not quite as fine as Imperial Gage and others of that type, but still very good. Bearing in mind that it comes into bearing at least three years sooner than plums of the ordinary type, and that curculio do not seriously disturb them, it is plain that they have a place in our horticulture. Satsuma is also a good plum of this family. The Ogon is not desirable by reason of its poor quality.

Port Jervis, N. Y. E. G. FOWLER.

Miscellaneous.

THE RUSSIAN VIOLET.—Apropos of our note page 276, F. L. A., writes to us to say that Pitcher & Manda, Short Hills, N. J., have got it.

PAUL BRUANT OR DAUGHTREY BEGONIA? If our correspondent will get a plant of the true Paul Bruant begonia—it may be had from several of our florists—and grow it alongside of the other, it will speak for itself.

SINGLE PÆONIES.—A year or two ago we got a lot of single varieties of pæonies both of the tree and herbaceous kinds from Japan. The tree ones are beautiful, but we cannot get into such ecstacy over the herbaceous ones, they are a good deal like what we can raise here from seed

PANSIES.—Pick seeds from the best varieties and save them and sow them about the first of August. By letting the seeds drop around the old plants thousands may come up after midsummer and give you all the plants you wish to have, but as they represent good and bad better save seed of the best and raise the best.

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We have recently placed over one hundred flower boxes in the windows of our factory in Jersey City, two blocks from the Pennsylvania railroad ferry. This is an experiment on our part to see if it is not possible to cultivate flowers in boxes to a greater extent in this vicinity. As most of the electric cars pass by our works, we thought that the flowers would be seen by a great many persons who might be induced to try a like decoration in their private houses. The writer while last summer on a visit to England, was much impressed by the large number of flower boxes seen in the windows of factories and private buildings, and there appears to be no reason why this method of beautifying dwellings in our large cities cannot be extensively carried out. The factory unfortunately faces the north, so that the plants will not do as well as if placed in a more favorable exposure. The effect is most pleasing, and we trust may lead to the greater use of flower boxes in neighboring districts.

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Facing the north isn't at all a bad exposure for window boxes,and you will find that many hanging plants, and fine foliaged ones, will thrive there that might not do so well outside of a south facing window. And so far as flowering plants as nasturtiums, petunias, several geraniums, begonias, plumbagos, and the like are concerned we have found that they blossom fairly well in such a situation.

TO GET RID OF FIELD MICE.

I got rid of field mice in my flower garden by poisoning them with arsenic. They were very destructive but I hardly ever see a sign of one now. I cut raw potatoes into small pieces, opened a hole into each piece and put a very small quantity of the arsenic into it, being very careful to get none on the outside to be tasted by them, for like other mice they are very shy of bad tastes and must be fooled into eating by getting what is good first. These I kept on hand and whenever I saw a plant wilt I ran a round stick into the burrow, dropped the the potato in and covered the hole with a clod to keep Mr. Mouse from knowing I put it there. LUCY G. CHRISMAN.
Rockingham Co., Va., June 3, 1895.

CONCRETE BUILDINGS.—H. E. G., Council Bluffs, Iowa, asks: "Has experience demonstrated that concrete is unsuitable for dwelling and farm building construction?" And other questions about concrete. We have submitted the inquiries to several city and country builders, but no two of them have given us the same reply, some are in favor of it but the majority are opposed to it. Hereabout it is used very little. At the same time, at Oyster Bay near here, seawalls made of it—using Portland cement and not Rosendale—have kept up better than those made of stone a d cement, and the concrete was nearly one-third cheaper than the other.

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Lancaster, N. Y., May 27, 1895.

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Oshkosh, Wis.

I FIND IN every issue of GARDENING much pertinent information on many things pertaining to my work.
WM. MCMILLAN Supt. of Parks.
Buffalo, N. Y., May 23, '95.

I HAVE ONLY been a subscriber to GARDENING for a few months, but am delighted with it. Each number gives me some long looked for information. Success to GARDENING. MRS. H. D. L.
Ventura, Cal., May 10, '95.

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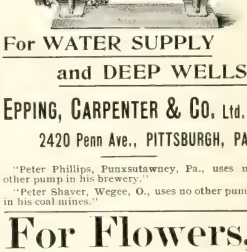

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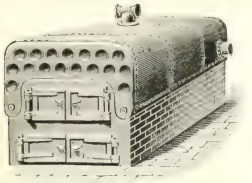

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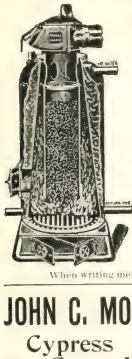

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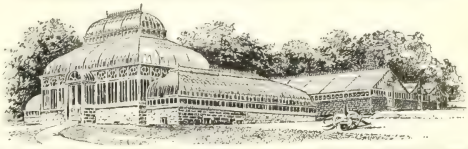

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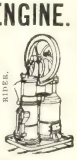

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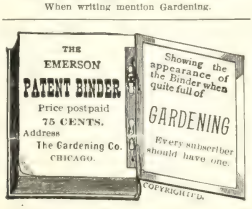

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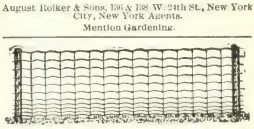

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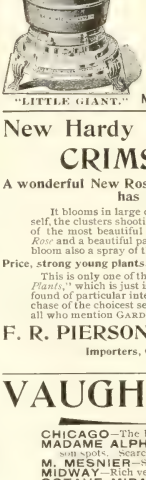

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GARDENING

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A BORDER OF HARDY FLOWERS IN FAIRMOUNT PARK, PHILADELPHIA.

The Flower Garden.

HARDY FLOWERS.

In our out of door gardens, no matter how much we may admire the gay plants of the summer that have been nursed all winter in greenhouses, when it comes down to real enthusiasm, it is born of hardy plants. And the older we are and the deeper we have dabbled in gardening the firmer becomes our affection for hardy flowers. They afford us an unbroken variety from March till November, and even in midwinter Christmas roses, some cyclamens and a few uncommon species of crocuses and snowdrops would with a little shelter over their tops break through the ground and blossom in spite of the weather.

Hardy flowers are everybody's flowers. The poor man fills his yard with them, and they last forever without expense, love for them making the little attention they need a pleasure, and their increase given to the neighbors in exchange for some of theirs keeps the garden full to overflowing, and the increasing variety adds to the interest. The rich man's garden is a blank without them.

But to have them in perfection hardy perennials need good ground to grow in, lots to eat and drink, and plenty room in which to spread themselves. In preparing a border for hardy plants the most essential thing is to thoroughly unfasten the soil two spits deep at least, keeping the subsoil always in the bottom of the trench and the good soil at the top—never mix them; the rains draw the nutriment down and the worms bring the humus from the top to the unfastened bottom, but not into the hard pan.

Don't overcrowd your plants. At the same time have no empty spaces. By a little practical experience we soon come to know the habits of our plants—height, spread, time of blooming and season of rest, and act accordingly. For instance, the Oriental poppies come up in spring, with much vigor and spread of foliage, smothering to death every little plant within their reach, but by the middle of June their flowers are gone, and by the first week of July their foliage is ripe enough to cut over and remove, and the place they occupied may then be filled with other plants.

Our illustration shows an apt and pretty arrangement of hardy plants. It was engraved from a photograph taken in Fairmount Park, Philadelphia, last month. Of course the plants seem to have an unusual amount of room, but in a large public park we can afford to give them that. See what handsome clumps of irises they are. The picture shows the principle of giving plenty room and its results very well. Between the plants every empty

spot may be filled with mignonette, dwarf nasturtiums, China asters, gladiolus, pigmy dahlias or other of the host of plants so available for summer and autumn blossoms.

MY GARDEN AS IT IS NOW, JUNE 20.

My garden is one of hardy shrubs and perennials, and each morning, as the season advances, it opens up some new blooms that have just awakened from their yearly nap. The glowing beds of carpet designs, worked out in geraniums, coleus, alternantheras, etc., in our parks, present the same aspect from the time they are planted out until frost destroys them. Terrapin is an exquisite dish, but who wants it at every meal of the year?

My shrubs and perennials are grouped together, the latter in masses, and in full sunshine or shade, as their original habitat suggests. Biennials of merit are used, and for fine foliage effect the castor bean (*Ricinus*) and similar plants do their share. The majority of hardy shrubs being spring bloomers, have had their day—been cut in to keep within bounds, and are now busy getting ready for 1896. Those in bloom now are *Styrax Japonica*, hardier than its relative, *S. Americana*, but it is much the better for winter protection.

Roses—*Rosa rugosa* in a hedge, and as isolated plants, is redolent with perfume from its numerous blossoms, and already forming its cherry-like hips for its summer adornment. Its hybrid descendant, Mme. Georges Bruant, with terminal clusters of long pointed white, fragrant buds, justly delights the ladies. It needs slight protection in a winter like last. For color effect in the shrubbery and for individual beauty all through the season *Rosa rubrifolia* stands among the elect. The handsome new red foliage covered with "bloom" and the olive green of the maturing leafage, whether augmented in its beauty by its mass of flowers or consequent berries, is charming. It is as hardy as an oak, and like *Rosa rugosa* has no insect enemies. Among the climbing roses the Seven Sisters and Ayrshire are in their prime, with the Prairie Queen just opening up. The wild prairie rose (*Rosa setigera*) and the Crimson Rambler will soon follow. Hybrid remontants were never finer, and a large bed in the back yard makes one forget all the care bestowed upon them. Insect pests seem to avoid them this year.

Most of the weigelas are past blooming, but *Desboisii* and *candida* are still showy. In rich ground this family want protection during winter.

Syringa Japonica, the tree lilac, is forming immense panicles of bloom. I await its development with interest, as it will be the first time it has bloomed with me, and four years' patience is to be rewarded. *Syringa villosa* and *S. Josikæa*, two desirable species, are on the wane, but they did their part well in prolonging the lilac season.

Rhodotypus kerrioides, the white kerria, has commenced its summer season of bloom, and while not very showy it is well worthy of cultivation. There is a gap in the season of bloom of the *spiræas*, the only representatives now in flower being *S. Ulmaria*; *S. Lindleyana* and *S. Kamtchatica* will open in a few days, and those of the *callosa* type will soon follow, and keeping company with the herbaceous ones we will have *S. Iobata* and *S. palmata*. *Rubus odoratus* in a damp, shady place, with its elegant, broad foliage and reddish purple flowers is effective. A hedge of honeysuckle partially enclosing the clothes drying ground is now covered with blooms so attractive to the humming bird—Hall's honeysuckle winter kills to the ground, but reaches a blooming state by midsummer. Here and there in sheltered nooks and prominent points fox-gloves (*Digitalis*) are in bloom in soldiery array, and near them a group of fifty or more cup-and-saucer Canterbury bells of various colors mixed indiscriminately. Both are treated as biennials, and wintered in a cold frame. The mullein (*Verbascum phlomoides* and *V. Olympicum*) in their candelabra formed flower stalks add a certain stateliness to their surroundings that is charming. They are biennials, worthy of more extended cultivation. The poppy mallow (*Callirrhoe involucrata*) creeping under the *Azalea mollis*, in its deep crimson flowers, compensates in a measure for the departed glory of the azaleas. The double *Lychnis Viscaria* (the ragged robin) in a mass presents a most vivid picture. Its dense spikes of a deep rose red color last a long time on the plant. *Gaillardia aristata* var. *Templeiana* is more dwarf and compact than the forms usually grown. Their bright flowers follow the sun in its rounds, and are so placed that from our porch in the evening their faces are turned towards us. The grand and stately hybrid delphiniums are nearing their prime, and with good culture and timely removal of spent flower stalks they will flower more or less all summer.

Clematis integrifolia and its hybrids are free blooming plants of great merit. The type forms a low upright bush, with charming nodding blue flowers. The hybrids vary in color of flower, being different shades of blue and pink, larger than the type. The variety Durango is extremely desirable, having flowers of a dark blue, opening out flat, and larger than those of *C. Jackmanni*. All but the type are semi-climbers, requiring a support, and growing some three or four feet high. But lest I tire your readers I must stop, and let the Iceland poppies, *Heucherа sanguinea*, *Pyrethrum roseum*, *Scabiosa Caucasica* and a host of others, including the Zanzibar water lily in a tub in a sunny corner, remain unnoticed.

[No, pray go on. You are giving actual facts; that is the truth—the voice of experience, and this is what our readers want. —Ed.] W. C. Egan.

Highland Park, near Chicago, June 20.

THE JESSAMINE CLEMATIS.

F. C. D., Madison, Conn., writes: "I have sent you by mail to-day some blossoms which I would feel much obliged if you would tell me all you can about—name, best methods of culture, etc. It is one we think a great deal of here, although it is not commonly cultivated in this locality. We call it jessamine. Last year it was quite badly damaged by a slug, or at least I suppose it was that that caused its foliage to turn yellow before and after it commenced blooming. This season it commenced to look the same way, although the 'slugs' did not appear, only a little black bug or fly. I sprinkled with tobacco water first, afterwards with hellebore, and I think the latter was effective."

It is an unusually pretty form of *Clematis crispa*, a species indigenous in our southern states. Here we treat it as a hardy herbaceous vine, but it is not a tall growing plant by any means, 4 to 6 feet high being its usual size. The flowers are nodding, campanulate, leathery in texture, wavy edged, bluish purple in color and quite fragrant. It isn't a "fleecy" flower like our common wild clematis, nor a showy wide open one like *Jackmanni*, but belongs to the leathery, half closed set of which *Clematis coccinea* is a well known member. We find it likes good, but well drained soil, a warm, sheltered place in the garden, a shovelful of coal ashes or armful of leaves over its crown in winter, and a stake or string as suoport in summer. We suspect it wasn't a "slug" that caused the plant to become yellow in summer, for we have found that *crispa*, *coccinea* and the large flowered clematises are often attacked by fungus pests that so far have defied our efforts to counteract them.

A YELLOW FLOWERED CANADA COLUMBINE.

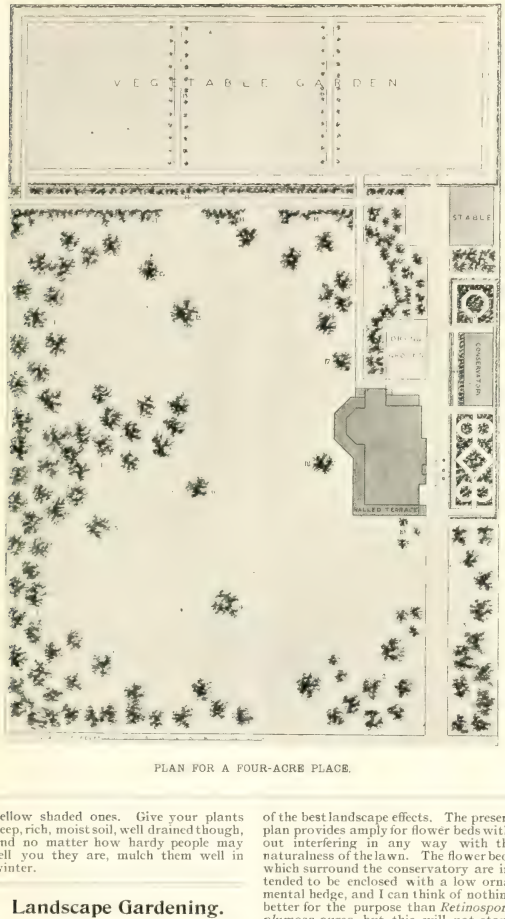
Mr. Warren H. Manning of Brookline, Mass., sends us seeds of a pure yellow-flowered form of our wild red columbine, and writes: "They came from a large clump, about which were several seedling plants, with clear yellow flowers and with a rather more glaucous foliage and dwarfer habit of growth than the normal plants that grew near them. Seeds gathered at Tarrytown, N. Y., June 13, 1895." This reminds us of another yellow columbine we once had but which is now unknown in cultivation, namely

Aquilegia longissima of northern Mexico. It is nearly related to our golden columbine (*A. chrysantha*) but has spurs 5 inches and over in length, indeed they hung down about the plants, reminding one of dodder on clover. We raised it a good many years ago at Cambridge, Mass., from seeds given to us by Dr. Edward Palmer, who collected them in Northern Mexico. We raised a good many plants of them and had them bloom beautifully, but they never ripened any seed. Although we sent several of the young plants to Europe, and also disseminated them at home, two years after, there wasn't one living plant of them left. And we have never heard of its reintroduction.

Geums.—F. C. C., Bath, Maine, asks: Is *Geum atrosanguineum* synonymous with *Geum coccineum* and what do you think of them (or it)? How long is the blooming period?" *Geum coccineum* is the species, and *atrosanguineum* a variety of it. The species is a very pretty hardy herbaceous plant, but we have not found it to be very rugged or long-lived. In Maine, however, it should do better than at Dosoris. Get the double-flowered form (it is only semi-double), it holds its blossoms better than the single one. They blossom freely in early summer, and, weather permitting, scatteringly for some months longer. They dislike dry hot land.

The Hoary Pea.—A. F. H., Coatesville, Pa., writes: "I send in small box by this mail a couple of sprays of wild flower gotten from a hill top near here in full sunshine on rather a dry bank. The flowers look like those of sweet peas but grow in clusters on a bushy plant, herbaceous, about a foot high or rather more." It is the hoary pea (*Tephrosia Virginiana*), one of the prettiest of our summer wild flowers.

Kæmpfer's Irises.—An Illinois correspondent asks: "Is it natural for the Japan iris, if in a healthy state, to have—some of them—a decided yellowish cast to their leaves?" No, it is a decided sign of sickness, and of a common one too. We often find a lot of plants in a field so affected, and still they make growth and bloom and bear seed. Throw out those



PLAN FOR A FOUR-ACRE PLACE.

yellow shaded ones. Give your plants deep, rich, moist soil, well drained though, and no matter how hardy people may tell you they are, mulch them well in winter.

Landscape Gardening.

PLAN FOR FOUR ACRE PLACE.

The accompanying plan shows a convenient and pleasing arrangement for grounds of about four acres when it is desired to have a conservatory, stable and vegetable garden. The possession of a greenhouse means besides winter flowers and fine foliaged plants the growing of a quantity of bedding plants and the making of flower beds for them in the summer time. Flower beds are in no way objectionable, on the contrary they may be very beautiful and interesting, but the spoiling the repose and beauty of the lawn with them shows a lack of appreciation of the best landscape effects. The present plan provides amply for flower beds without interfering in any way with the naturalness of the lawn. The flower beds which surround the conservatory are intended to be enclosed with a low ornamental hedge, and I can think of nothing better for the purpose than *Retinospora plumosa aurea*, but this will not stand in any extremely cold climate such as that of Chicago, where Siberian arbor vitæ could be used. These flower beds would answer admirably also for the growing of spring flowering bulbs, hyacinths, tulips, etc.

It is a common mistake to completely surround the house with roads and walks, a portion of which are usually unnecessary. The effect is much better if the lawn sweeps unbroken to one or two sides of the house. The walks and road of this plan give access to every entrance of the house, but still allow the grass to come unbroken to two walls, which are to be covered with Boston ivy (*Ampelopsis Veitchii*).

The vegetable garden may be made the most interesting place imaginable—usually it is simply a field of vegetables fully exposed from all points of the ground and very often unsightly. Now, the vegetable garden should be concealed from the lawn and house and this necessity at once suggests a border or boundary planting of shrubs and herbaceous plants. This planting should not only hide the garden but should hide its outlines, which are usually rectangular. The garden itself should be enclosed with a wall or hedge, which should show from inside the garden but never from the lawn. California privet makes a very satisfactory garden hedge, but where that is not hardy, and I am sorry to say the past winter has shown it to be reliably hardy in only a few localities, hemlock spruce can be used. Nothing makes a finer hedge than this, but it is slower growing than the privet, of which I have seen a perfect hedge five feet high made in three seasons, starting with two year old plants.

The plan shows a convenient walk leading directly from the house into the garden; a walk all around the garden, leaving a space for a flower border between the walk and the hedge or wall, also two walks dividing the space reserved for vegetables into three rectangular pieces of equal size, on both sides of these walks grapes and dwarf pears are planted, and small fruits can be planted on the inner sides of the outer walk if desired. The walks can be made of any material that is convenient, and need not be expensive. In one garden that I know they are made of grass, that is mowed and kept as a lawn would be. I know that there are objections that can be urged against grass walks, but the owner of the garden in question does not find them objectionable, and they are certainly more pleasing than gravel walks. The border between the walk and hedge or wall should be given up entirely to flowers—hardy plants should predominate, but there should be liberal spaces reserved for summer blooming bulbs and annuals. In the hardy plants each variety should be grouped and as many varieties used as thought desirable, but in making a selection flowers suitable for cutting as well as for making garden effects should be used. Such bold and striking plants as single hollyhocks and foxgloves should be planted in decided masses, and a border with eastern or southern exposure used for H. P. roses.

A vegetable garden arranged as described and properly cared for, in addition to being an interesting and pleasant place to visit, would furnish an abundant supply of cut flowers for the house, hospital, church and friends, and I think one of the keenest pleasures a garden can afford is the ability to give away flowers without stint.

EXPLANATION OF PLAN

1. 1. 1. Deciduous trees with a few evergreens.
2. Trees and specimen shrubs.
3. Evergreens and specimen rhododendrons.
4. Sugar maple.
5. Tulip tree.
6. White-leaved linden.
7. 8. 9. Beds to be planted with bedding plants in the summer and spring-flowering bulbs in the fall.
10. Rhododendrons and evergreens.
11. Magnolias.
12. Wier's maple.
13. Scarlet maple.
14. 14. 14. 14. Shrubbery.
15. Hardy grapes.
16. Dwarf pears.

17. Pin oak.
18. *Magnolia parviflora.*
19. Japanese maples.

J. WILKINSON ELLIOTT.
Pittsburg, Pa.

Trees and Shrubs.

TREES AND SHRUBS IN BLOOM AT ROCHESTER, N. Y., JUNE 22.

The weather has been dry and hot and the ground is dry and plants are suffering. The flowers of trees and shrubs have not lasted their usual time.

The tulip tree, a common native forest tree of fine proportions, was in full bloom ten days ago, its flowers in yellow and orange tints are very pretty. The common European linden has been in flower for a few days and diffusing its grateful fragrance. How the bees love it! The western bean tree (*Catalpa speciosa*) was at its best the first of this week. The European privets in different varieties are passing out of bloom. *Ibota*, a Japanese species, is now in full flower. It is in much repute with many cultivators, but so far it has not done well here. The Chinese privet (*L. Sinense*) is in full flower and quite pretty.

A mass of the low growing yellow blooming *Genista tinctoria* is quite showy, and *Cytisus hirsutus* with lemon colored flowers is opening. It is a compact, thrifty, hardy shrub. The flowers of *Cytisus nigricans* are beginning to open. It doesn't do very well here. *Spiræa tenuissima* with white flower spikes is on the wane; *Lemncana*, pink or rose tinted, has been in bloom for a few days; *Bumalda*, rose pink, is beautiful. Billard's is now showing rose colored spikes, and *salicifolia* will be in good bloom in a few days. The Amoor lilac with panicles of white fleecy flowers is past, but *Syringa Japonica* is not in bloom yet. The stag horn sumach has terminal panicles of greenish white flowers; the smooth sumach's flowers are like the last, but they are not fully out yet. Venetian sumach or purple fringe, however, is very attractive.

The common wild elderberry bush is in full bloom, as are also the black berried European form in its plain, variegated-leaved, cut-leaved and pyramidal varieties; and the early flowering red berried elder is showing ripe fruit. *Viburnum Nepalense* has passed out of bloom. The panicled dogwood is about past, the silky dogwood is still in good bloom, and *Cornus asperifolia* is coming into flower. *Jamesia Americana*, a small shrub from the Rocky Mountain regions, has pretty white deutzia-like flowers that have just passed. *Itea Virginica*, a small shrub from New Jersey south, has racemes of pretty white flowers. Its foliage is beautiful in fall. The crenate deutzia in single and double white and rose tinted varieties is in fine bloom, so is the New Jersey tea (*Ceanothus Americanus*), dense clusters of small white flowers. *Lonicera translutens*, a tall bushy shrub with yellow flowers, is past, it was in good bloom a week ago. The flowers of the European honeysuckles are reddish outside and yellow inside; Hall's in white and yellow is beautiful and fragrant, and the trumpet honeysuckle and wild yellow one are still in good bloom.

Some of the late blooming mock oranges or syringas are showy. Lemoine's hybrid one is a free flowering, compact form; and one called *Mexicanus* is hardly in bloom yet. Some of the later blooming weigelas have a few lingering flowers, and Camuset's rose acacia is producing a second crop of flowers. The hop tree (*Ptelea*) with greenish white disagreeable smelling flowers was in full flower seven or eight days since. The winter berry with small white flowers in the axils of the leaves is about past. Its brilliant berries are very showy in early winter. The shrubby cinquefoil has yellow flowers and it will keep on blooming for the rest of the summer. One called *Parvifolia* looks like a variety of the last; it has smaller leaves and a somewhat procumbent habit, but its flowers are similar to those of the type. *Clematis viticella*, bluish purple, *cœrulea*, blue, and *Hendersoni*, bluish purple, are all partly in bloom now. The common snow berry and the wolf berry are showing their small white and rose colored flowers. J. DUNBAR.

QUESTIONS FROM MINGO, W. VA.

CLIMBER FOR A CHIMNEY.—"Can you suggest a good hardy climber for a stone chimney having a southeast aspect? Would the Crimson Rambler rose be suitable?"

The Japan ivy (*Ampelopsis Veitchii*) is probably the best thing you could use, for conditions being suitable it will run up 30 or 40 feet, completely covering the chimney with a dense, neat, close-fitting wall of foliage. Wistarias, akebia, or Virginia creeper, if trained up to an iron rod would also run up 20 or 30 feet. No, Crimson Rambler wouldn't grow tall enough. But before you plant anything there see that the soil about the chimney is deep, rich, and good, and not ap to get over dry in summer. If it isn't so, dig out the old soil and replace with fresh.

EVERGREEN CLIMBERS FOR A WALL AND VERANDA.—We cannot encourage you. The English ivy and the creeping enonymus (*E. radicans*), might do for the wall if not in a hot, dry situation, but we cannot assure you, you would have to test the matter. The akebia and Hall's honeysuckle both keep their foliage so long in fall that they come nearest to an evergreen suitable for your purpose, but both must have supports. As a self clinging vine for a wall, however, even it it isn't evergreen, we recommend the Japan ampelopsis (*A. Veitchii*). Hall's honeysuckle and *Clematis paniculata* make two fine vines for a veranda, but neither is evergreen.

MAGNOLIAS.

B. W., Terre Haute, Ind., writes: "I have been trying for the last ten years to get a magnolia to live in my garden, but without success. I had a *M. acuminata* that lived for two years with me and then died. I had two in two years of *M. grandiflora*; they lived through the summer and then died. Then I had *M. parviflora*; it started off very good, but died suddenly in less than two months. *Soulangeana* also died in two months after planting. Both last year and this year I had *M. hypoleuca*, and it started off good but died. Now I have many beautiful trees in my garden, but why can't I have a magnolia? Whether they should be planted in shade or sunshine, and in what kind of soil? I can give them any kind of soil you recommend."

We cannot tell why your magnolias failed, but will advise you in a general way. Get young stocky well rooted plants, in spring only, and plant them in good ground that does not get very dry in summer, and in a warm sheltered place. Be exceedingly careful of the plants between the time you get them and when you plant them, so as not to let the roots get dry. Plant in mellow soil. In view of the trouble you already have had in trying to get one to live we should advise you to place a lath shading over the plants, raised 4 to 6 feet above ground and supported by four light posts—one at each corner. Mulch about the plants in summer, and in the event of protracted drouth give the ground a thorough soaking of water now and again. Set a bottomless inverted barrel over the plant in winter for a year or two after planting, and if one isn't enough knock the head and bottom both out of the barrels and set one above the other over the plant, bracing them between posts and tying them with string, and mulch them heavily in winter, removing it in spring.

Magnolia acuminata is a handsome native forest tree, but its flowers, which are green, are not at all showy. *M. grandiflora* is the noble evergreen tree magnolia of the south, and not hardy in the north. *M. parviflora* may have had an attack of Japanese die-back, and this is more likely if it were *M. Watsoni*, which used to be called *parviflora*. *Soulangeana* in a naturally warm spot in your garden should survive if given the conditions above described. *M. hypoleuca* being, we are inclined to believe the hardiest of all, should stand your climate well enough. All magnolias dislike drouth.

HARDINESS OF ESCOLLONIA.

"IS ESCALLONIA FLORIBUNDA HARDY in this climate?" asks C. H., Roxbury, Mass. Further: "Can you advise me as to proper culture, I have several rather straggly plants a few years old, that have never blossomed. They have been grown in pots, plunged in ashes in summer, and kept in a pit in winter. I tried planting them out one year, but they did not lift well."

No, it is not. It requires what is known as cool greenhouse or pit treatment, such as we give to azaleas, myrtles, and aucubas. Wouldn't it be well to cut in the stragglers considerably? This is best done when growth begins in spring, but we wouldn't hesitate to do it now. Keeping them in pots, plunged outside as you have done, is good practice providing the drainage in the pots is perfect. A thin lath shade overhead will do them good.

HOW SOME SHRUBS WINTERED AT CHICAGO.—The Japan snowball had been well wrapped with straw over winter, and was looking well when we uncovered it, but now we find it is injured to the ground. *Akebia quinata*, perfectly unprotected over winter is all right. *Prunus triloba*, *Spiræa prunifolia*, and *Pyrus Parkmannii* have come through in excellent condition and are blooming better than ever. W. C. EGAN.

Roses.

ROSES IN JACKSON PARK, CHICAGO.

Tens of thousands of people who visited the World's Fair at Chicago two years ago will remember the Wooded Island and its famous Rose Garden, and they will be pleased to learn that that rose garden and its contents have been preserved. Our illustration is engraved from photographs taken there two weeks ago. Notwithstanding the unkindness of the Chicago climate and soil for hardy roses, these Wooded Island roses have increased in

VIEWS IN THE ROSE GARDEN (OF THE WORLD'S FAIR WOODED ISLAND) JACKSON PARK, CHICAGO

strength and glory, and have become a joy to the people. And they are well taken care of.

In the spring time the beds are mulched all over three or four inches deep with the grass mowings from the lawns, and which is left on all summer. This is to keep the ground cool and moist.

In the fall the beds are cleaned up. And before hard frost sets in the roses are bent down to the ground and pegged there in place with wire hoops, and then covered over with a foot deep of dry tree leaves, over which is spread about 3 or 4 inches deep of old grass mowings. The mowings keep the leaves in place and dry, for they form a cake or coating over the leaves that sheds water readily. The rose bushes survive the winter under this covering without the least injury.

Mr. Leutschg, the gardener in charge, gives the following list of roses as being the ones which have, after being grown there for three years, behaved the best and gave the most satisfaction:

THE BEST TWELVE VARIETIES.

Alfred Colomb.
Anne de Diesbach.
Baroness Rothschild.
Earl of Dufferin.
Gen. Jacqueminot.
Jeannie Dickson.
Magna Charta.
Margaret Dickson.
Marshall P. Wilder.
Merveille de Lyon.
Mrs. John Laing.
Paul Neyron.

FOR A FURTHER SELECTION ADD

Anna Alexieff.
Auguste Mie.
Belle de Jardin.
Belle de Normandie.
Caroline d' Arden.
Coupe d' Hebe.
Duchesse de Caylus.
Duchess of Albany.
Francois Levet.
Gloire de Lyon.
G. M. Maurande.
John Hopper.
Jules Margottin.
La Reine.
La France.
Louis Van Houtte.
Madame Georges Bruant,
Madame Plantier.
Mrs. Bosanquet.
Pæonia.
Perfection des Blanches.
Rosa rugosa.

When the photographs were taken Anne de Diesbach was the handsomest rose of the lot, and General Jacqueminot the most brilliant Merveille de Lyon, Gloire de Lyon and Paul Neyron were fine, and as a crimson Marshall P Wilder was exceptionally good. Neither Margaret Dickson nor Jeannie Dickson were as good as they were a year ago. Madame Georges Bruant, the hybrid of *rugosa*, was very satisfactory and so was Madame Plantier.

NOTES ON ROSES.

In Central New Jersey the dog rose of the English hedge rows has naturalized itself more freely than in any other section of the country with which I am familiar. The sweetbriar (*R. rubiginosa*) is also quite common along the Delaware and Raritan Valleys, and sparingly at intermediate points. The Cherokee rose (*R. lævigata*) is another exotic species which manages to live in these parts, and in favorable positions on wall or fences blooms full—later than most other single roses. There are very old plants of it in the city of Trenton which I fancy have been carried around and propagated from plants brought north during the war. The oldest plant I know of was for years in a cemetery, and was thence transferred to a bleak place, where although it has got more or less injured nearly every winter, it is still in good health The people here persist in calling it the magnolia rose, and not Cherokee. The Japan *Rosa rugosa* in several varieties is becoming common, and here as everywhere it is quite satisfactory.

Except three or four wild forms the only other species seen is the prairie rose (*R. setigera*) which has been collected at points in Hunterdon County, I understand, I have not seen it but fancy it must have been thrown out of some garden, or perhaps collected on some old garden site. I don't see why people want to keep calling this rose *rubritolia* [They shouldn't, for the true *R. rubritolia* is a very distinct species from it.—Ed.]

The *lutea* roses (Persian and Harrison's yellow) are frequently seen in gardens and are among the earliest to bloom. The Burnet or Scotch roses are often met with in several varieties, and in superb health. Only yesterday (June 18) I saw plants in full bloom which were very beautiful indeed. The double flowered prairie roses are in fine order just now, but the bulk of the hybrid remontants are past.

DINSMORE ROSE—POCAHONTAS — The oldest local rosarian at this point is Mr. George Wainwright, a pupil of the late Robert Buist, and the raiser of a rose which has certainly the merit of being a true perpetual, and a good rose in color. The flowers come imperfect sometimes in cool weather, but there are such shoals of them from June till frost, that the better plan is to pick the "bull-head" buds off and relieve the little plants. Mr. Wainwright's name for this rose was Pocahontas, but some one changed it and now it is called Dinsmore. The same liberty was taken with what is now known as Crimson Rambler; its first and proper name is Engineer.

In this part of New Jersey some of the English workmen in the potteri s give a better display of gardening taste do their employers. But one of the most prominent rose amateurs here is a very popular and much respected citizen, Councillor G. D. W. Vroom. He has a fine lot of the older hardy H. Ps. General Perrine also collected a large number of fine varieties of ros s during his lifetime, and these are still cherished by his daughter, Mrs Bell.

I have been over the following list of hardy varieties of hybrids with Mr. Wainwright and he agrees with me that it is hard to beat for this s ction of the country. All do very well if planted on somewhat heavy and well fertilized soils. The soils are very variable here as you know, and some of the sands would be helped for rose culture if they received a good dressing of clay-land sod and manure, composted for a year before using. For such soils you may make the compost nearly half manure.

CRIMSON SHADES.

Fisher Holmes, brilliant crimson (if true).
General Jacqueminot, glowing crimson.
Prince Arthur, deep crimson.
Souvenir de William Wood, very dark crimson.
Gloire de Margottin, brilliant scarlet.
Dinsmore (all summer), scarlet crimson
Baron de Boustetten, crimson maroon.
Jean Liabaud, crimson maroon.
Duke of Edinburgh, brilliant crimson.
Lady Helen Stewart, crimson scarlet.
Prince Camille de Rohan, velvety crimson.
Louis Van Houtte, crimson maroon.

FLESH AND ROSE PINKS.

Mrs. John Laing, soft pink, very fine.
Anne de Diesbach, soft carmine.
Magna Charta, pink suffused with carmine.
John Hopper, bright rose.
Mme. Gabriel Luizet, pink.
Countess of Oxford, carmine red.
Paul Neyron, deep rose.
Marchioness of Dufferin, rosy pink.
Captain Christy, flesh color.
Merveille de Lyon, white shaded with rose.
Baroness Rothschild, pale pink.
Queen of Queens (all summer) pink with blush edges.

It is extremely difficult to limit the number of pink roses, and to give a list of twice as many would be easy.

WHITE OR WHITE AND BLUSH.

Coquette des Alpes, white tinged blush.
Coquette des Blanches, white faintly tinged blush.
Mme. Plantier, white.
Boule de Neige, white, small.
Mabel Morrison, flesh white.
Margaret Dickson (white tinged flesh color in center) is as yet insufficiently tested. [Does very well at Dosoris, only it is not a free bloomer.—Ed.]

HARDY CLIMBING ROSES.

Reine Marie Henriette is reported hardy at this point, but although I have watched for it, I have not met with it.
Boursault, crimson red, not full double.
Gem of the Prairies, rosy red.
Queen of the Prairies, rosy red.
Baltimore Belle, pale blush.
Seven Sisters or Greville, blush.
Gloire de Dijon, mixture of rose, salmon and yellow, and such teas as Isabella Sprunt are all seen on walls, etc., and are hardy in about the order named.

MOSS ROSES.

Mr. Wainwright regards the old English Moss, rose color, as still the best, and Luxembourg, dark crimson, White Bath, white and Princess Adelaide, pale rose, as being as good as any for variety.

SEVERAL OLD ROSES are seen at this point in old gardens. The one most enquired for and most difficult to find is the good old "York and Lancaster" (union stripes of red and white). [It is perfectly hardy and now, June 20, in fine bloom at Dosoris. Still as it is only semi-double, the average visitor doesn't enthuse much over it.—Ed.] You see an old rose like this with its pretty legends and sweet Damask perfume, has a value quite in contrast to that of the lists I have given above.

TENDER ROSES.—Several of these get over the winter in our city yards with good sun to ripen them and buildings to shelter them quite as well as at Baltimore I think. Among the most desirable kinds to grow are the following.

Agrippina, crimson.
Papa Gontier, rose and crimson.
Meteor, dark velvety crimson.
Clothilde Soupert, white, shaded with rose in center [Seems to be quite hardy at Dosoris.—Ed.]
Duchess of Albany, deep pink.
Duchesse de Brabant, light carmine
Souv. de la Malmaison, flesh color.
Hermosa, bright rose.
Souv. d'un Ami, rose tinged with salmon.
La France, silvery rose.
The Bride, white.
Kaiserin A. Victoria, creamy white.

Maria Guillot, white tinged yellow and the white Polyanthas.

THE ROSE CATERPILLAR is the worst pest we have here, but some one of the cheap arsenites used for the purpose will keep it down if applied in season.

Trenton, N. J. JAMES MACPHERSON.

CHARMING, BUT UNCOMMON ROSES.

While we all admit the beauty of the hybrid remontant, tea, noisette and other popular roses, and that they are indispensable to our gardens, surely we can find room in our hearts and gardens for some of the many lovely species and varieties of roses outside of those classes. The following are unusually interesting and beautiful:

THE ALTAI MOUNTAIN ROSE (*Rosa grandiflora*, or as it is called now *R. spinosissima Altaica*).—This is a very beautiful and perfectly hardy species, which flowers early and profusely. The flowers are large, single and white. It is a very beautiful garden rose.

THE PRAIRIE ROSE (*Rosa setigera*).—A vigorous plant of neat habit, a profuse bloomer and the flowers deep bright rose and single.

WILLIAMS' DOUBLE YELLOW SWEET BRIAR.—It was raised by Williams of Pitmaston. Its flowers are double yellow in the way of *Harrisonii*, and the foliage has all the delicious fragrance of the sweet briar.

AUSTRIAN COPPER.—A charming and unique shade of rich coppery crimson, with golden bronze shadings; indescribably beautiful; single.

AUSTRIAN YELLOW.—Flowers single, of the richest and purest yellow without a trace of other color; deep yellow stamens. We have many beautiful yellow roses, but none of the rich color of this charming flower.

DOUBLE YELLOW PROVENCE ROSE (*R. sulphurea* or *R. hemispherica* rather).—The flowers are large, very double and of a rich bright yellow color. It is the finest of all double yellow hardy roses.

OLD PINK CHINA (or PINK DAILY) is a beautiful but neglected old rose which should be found in every garden, it is one of the earliest to flower and continues up to winter; the color is bright rose or pink, and it is deliciously sweet. It is quite hardy about this city. JOHN SAUL.

Washington.

NEW HYBRID SWEET BRIARS.

LORD PENZANCE'S NEW HYBRID Sweet Briars. My collection of these beautiful hybrid roses bloomed finely this season; the flowers are large and clear in color and single or semi-double. In the part of my grounds where they are grown the atmosphere was heavy with the delicious scent of the sweet briars. They are strong vigorous growers, throwing long graceful branches, which are wreathed with flowers. These lovely hybrids are crosses between the common sweetbriar and various other roses, such as Austrian Briar, varieties of Gallica, etc. Like their parent, the common sweetbriar, the foliage is deliciously scented. The flowers are of the most beautiful tints, and produced in great profusion, and the plants are perfectly hardy and possess a robust vigor which is quite astonishing. On no account should they be pruned beyond removing whatever branches are undesirable to keep. If pruned back like ordinary roses they produce very few blossoms. Give each plant a 4 to 6 foot long stake and tie up some of the leading shoots to it. These briars are seen to best advantage when isolated on the lawn, or if grouped set far enough apart to allow of each plant having unrestricted freedom and its branches to hang gracefully and naturally. The following varieties have bloomed with me:

Amy Robsart—Lovely deep rose.

Anne of Geierstein—Dark crimson, followed by an abundance of clustered bunches of hips.

Brenda—Maiden's blush or peach.

Flora McIvor—White, blushed with rose. Fine for cutting.

Lady Penzance—Beautiful soft coppery tint; vigorous, free blooming and deliciously perfumed.

Lucy Ashton—White with pink edges; free grower and free bloomer.

Meg Merrilies—Gorgeous crimson; robust habit; free blooming.

Rose Bradwardine—Beautiful clear rose.

JOHN SAUL.

Washington, D. C., June 20, '95.

STANDARD ROSES.

E. W. T., Philadelphia, asks where he can get some standard rose bushes He writes: "I first saw them at the Fair in 1893, then again in front of the Zoological Garden here in '94. They seemed to be grafted on a pear stock and have a bunch of roses at the top of the stalk, but no growth on its sides."

They are what are known as "standard" roses. The stem is not "pear stock" at all but European wild rose. Although rose bushes trained in this way are very popular in Europe, they have never found much favor here, the climate being against them, so our nurserymen seldom raise them. But if you place your order now with any of the florists advertising roses in GARDENING, if he hasn't got standard rose bushes in stock he can get them for you.

THE LITTLE ROSE BUSHES DON'T FLOURISH.—J. P. T., W. Va., planted out some small tea rose plants in a good, well drained bed in a southeast aspect where they get the sun till mid-day. They grow a little, but don't flourish. The young leaves upon opening out shrivel up. They show a tendency to mildew, and some of them have greenfly. And asks if such young plants 8 to 10 inches high should be allowed to flower this summer. Mildew is probably the trouble, and that is bad enough. If superinduced by weakness keep the plants clean, nip off the flower buds, and remove the powdery leaves, and the roses should grow out of it; if by uncongenial conditions they may not, nip off their flowers till they make a good deal more body growth. With a little soapy water and a sponge swab off the greenfly, and when wet dust the shoots with some tobacco powder to prevent the insects returning.

PERSIAN YELLOW ROSE.—C. E. S., Genoa Junction, Wis., writes: "We are anxious to know the name of the enclosed yellow rose; you will observe the fragrance of its leaves, also the peculiar odor of its flowers." It is the Persian Yellow rose, a very hardy and distinct kind, and now quite common in gardens. The peculiar eglantine odor of its leaves is one of its most distinct characteristics.

HOSE THE ROSES.—A correspondent writes: "Our roses are better than ever before—larger and plumper, and strange to relate there are very few insects on them—hardly any on the H. Rs. and only a few slugs on the climbers. I wonder if daily hosing with the Rainmaker, under and over them, is the cause?" Not altogether. Rose bugs are less numerous this year than we have known them to be for years. But the hosing rids your bushes of the slugs, in fact, hard, copious, and frequent hosing is the remedy most insisted on by our best entomologist, as a preventive or cure of the rose slug.

ROSA GRANDIFLORA.—W. C. E., wants to get it but cannot find it in any catalogue. Try John Saul, Washington, D. C.

Orchids.

ABOUT MY ORCHIDS.

I have a little cool high studded greenhouse, cool on the bench but hot in the peak so I have a few dendrobiums up high, cypripediums lower down and odontoglossums on the bench. I had *Odontoglossum grande* in bloom last fall, and it was grand. *O. crispum* has been in flower for two weeks past and it is still magnificent. In a few days two plants of *Miltonia vexillaria* will be in flower, and then I shall be lost for adjectives. The garden art when once but a little bit acquired leads ever onwards. I had *Cypripedium spectabile* in bloom under glass in March, and now it is in full glory out of doors; there are two flowers to many of the stems. I always have a few native orchids in flower under glass in March, cypripediums and arethusas. I cannot buy *Disa grandiflora* and don't know where to beg it, none of the dealers seems to have it or wishes to sell a plant or two. [We believe you can get the *Disa* here. It is a hard plant to cultivate, keeping it in good health year after year. Some twenty years ago that grand old gardener the late James Taplin, when at Mr. Such's at South Amboy, N. J., used to grow it splendidly.—ED.]

Cambridge, Mass. T. N. C.

A WILD WHITE CYPRIPEDIUM.

M. P., Naugatuck, Conn., writes: "I have found a white cypripedium to-day growing among a lot of pink ones. The lips is pure white, and the sepals and petals yellowish green. Is it common or rare? What is its right name? The pink one is, I think, C. spectabile. Can the white one be forced as easily as the pink ones?"

We are not satisfied with the description given as it is not enough to enable us to distinguish the species. Can't you send us some leaves or a leaf stem with old flower of your white cypripedium. Also send us leaves, stem, and old flower of what you call *C. spectibile*. We are inclined to think that you have found a white form of *C. acaule*. We have also seen white flowered forms of *C. spectabile* but not with sepals and petals as you describe Besides, *spectabile* surely doesn't bloom so soon as this with you? *Candidum* might answer your description, but we don't know of its being wild in your neighborhood. Both *C. pubescens* and *C. parviflora* may be with you, however, but we never saw or heard of a white-lipped form of either of them. Yes, in proportion to its strength there is no reason why a white flowered variety of any cypripedium shouldn't be as easily forced as a normal one.

Since the above was written we have received leaves and flowers from our correspondent, and it is as we expected *Cypripedium acaule*.

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GARDENING

WILLIAM FALCONER, Editor.

PUBLISHED THE 1ST AND 15TH OF EACH MONTH
— BY —
THE GARDENING COMPANY,
Monon Building, CHICAGO.

Subscription Price, $2.00 a Year—24 Numbers. Advertising rates on application.

Entered at Chicago postoffice as second-class matter.

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All communications relating to subscriptions, advertisements and other business matters should be addressed to The Gardening Company, Monon Building, Chicago, and all matters pertaining to the editorial department of the paper should be addressed to the Editor of GARDENING, Glen Cove, N. Y.

GARDENING is gotten up for its readers and in their interest, and it behooves you, one and all, to make it interesting. If it does not exactly suit your case, please write and tell us what you want. It is our desire to help you.

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GET YOUR ROSES PROPERLY LABELLED.—Much of the enjoyment in having flowers is in knowing their names. Now while the ros s are still fresh in your memory, and before all the flowers are gone, look over their labels, and get these verified and secure for another year.

POISON IVY.—No one will deny its beauty as a woody vine or its brilliant coloring in fall, and no sane person will deny that it is a very bad thing to have growing about the house, especially where there are young children. Root out every bit of it that is in or about your garden; don't harbor it on the fences, and tear it from the trees, pulling it up by the roots.

A TRICOLOR LEAVED form of *Hypericum Moserianum* was one of the novelties recently exhibited in London. Another was

CARPENTERIA CALIFORNICA with pure white flowers and for which a silver Banksian medal was awarded. The Carpenteria isn't hardy at Dosoris, great is the pity, for it is a splendid yellow blossomed vigorous shrub.

KOEMPFER'S IRISES ON DRY LAND.—Don't become possessed of the idea that because you haven't a water puddle or tank in your garden you cannot grow these gorgeous Japanese flowers. You can grow them first rate in any good, deep, inclined to moist, garden ground. They are now in their heyday.

IF THE EARL OF DUFFERIN is the best crimson rose we have got and the most to be desired for our American gardens, why does it mildew at Dosoris worse than any other H. R. rose now in bloom? Yes, it flowered well and is growing well, and now every plant of it is touched with mildew, while many other kinds beside it are clean.

THREE NEW HARDY WATER LILIES.—In the *Revue Horticole* is a colored plate of three new hybrid nymphæas raised by that most successful enthusiast, M. Latour-Marliac, who has already enriched us marvellously in the same direction. These new ones consist of *N. Siegnoureti*, orange; *N. Laydekeri lilacea*, carmine; and *N. Laydekeri fulgens*, light carmine.

SPIRÆA ANTHONY WATERER is a new variety of *S. Bumalda*, with corymbs of deeper rosy crimson blossoms, but a writer in the *Garden* fails to find "much difference between it and a kind I have grown two years as *Spiræa Bumalda ruberrima*." He notes that in the case of Anthony Waterer there is a tendency to variegation in every plant. This tendency is natural to the species.

HER MAJESTY is a whiter and finer hardy pink than Mrs. Simpkins; both grow well and bloom well, and seem to be perfectly hardy, and both burst their calyx. It is so easy to propagate these hardy pinks that we wonder more of them are not grown. Early in April we lift them, tear the clumps apart, keeping some roots to each division, and plant them again and at once, making an edging of them

PRUNING TREES in summer has a tendency to produce flowers, hence fruitfulness, whereas pruning in winter is apt to induce the production of wood. Wounds made in summer, if cut smooth, heal easy, and there is very little "bleeding" at the wounds made. Therefore don't be afraid to do a little pruning in summer, keep the trees well balanced and symmetrical. But always remember hard pruning, if it can at all be avoided, should never be practiced.

TALK OF FANCY TRELLISES or rustic supports for climbing roses and hardy vines all you please, but when we look up the rose arbor at Dosoris made of plain posts and an iron bow, and cannot see anything but solid arches of rose leaves and blossoms we do not think that any fancy trellis on earth could do better work. And when we look upon that solid column 14 feet high of the wild prairie rose, a pillar of lovely blossoms from the ground up, we are not prepared to admit that the hickory pole that supports it could be surpassed for its purpose by any pin oak rustic work.

MAGNOLIA PARVIFLORA.—What a beauty it is, and so far, in the case of ten or twelve year old plants it shows no sign of taking the Japanese die-back. During the fortnight preceding the 2nd inst. it was full of spotless showy blossoms, but then the rose bugs came and they seek it more than any other flower in the garden. Many of the blossoms are semi-double. On the same plant some of the flowers have nine petals, and others have 12, 15, 18, 21, or 24.

VIBURNUM TOMENTOSUM is the "single" flowered form of the Japanese snowball, *V. plicatum*. Writing about it the other day Mr. E. L. Beard, of Boston, says: "I suppose you are familiar with it, and therefore it would be superfluous for me to speak of its great beauty. * * This is certainly one of the best things ever introduced from a strictly high standpoint of horticulture." A very beautiful clean-appearing shrub. It has bloomed at Dosoris for some years.

LET THE WATER FLOW if you want to get succulent vegetables and beautiful flowers this summer. Many of you complain that your pæonies don't bloom well and wonder why they don't. We are convinced that drouth in summer, especially in early summer, has much to do with it. Let the water penetrate to their lowermost roots and encourage them to make a strong healthy growth now, and probably there will be nothing amiss with the crop of blossoms next spring.

RHODODENDRONS.—Pick the old blossoms and newly formed seed pods off of them, and the same with azaleas. It isn't absolutely necessary at all, but as we all know the main effort of the plants are now directed towards perfecting and ripening the seed which is useless to us, we should nip out the seed pods and induce the plants to direct their energies to perfecting the wood and foliage and laying the foundation of a good crop of blossoms next year. It is for their flowers and not for their seeds we keep them.

SUNSCALD ON PLANTS. Some folks don't admit that there is such a thing. But when we look upon that handsome mass of variegated *Funkia ovata* and see the leaves all scalded as if boiling water had been thrown over them, and then turn around and view that Carolina hemlock with its young shoots completely destroyed, and remember the dripping foggy morning followed by the scorching hot sunshine of the day when it happened it is hard to convince us that we are the duffer because we believe our own eyes that such a thing could happen.

CYTISUS ANDREANUS, the beautiful partly crimson flowered form of the European broom, is said to be hardier when raised from seed than when grafted on laburnum, the stock commonly used for it. A correspondent of the London *Garden* tells that he raised a lot of plants of it from seed, and some came true to the parent, but the majority reverted to the plain yellow broom However, he planted them all out together, and now they are in bloom and flourishing, the *Andreanus* as well as the other. On the other hand every grafted plant of it is pretty generally killed all over the country.

ENGLISH IRISES.—By this we mean the bulbous rooted ones generally sold and grown under this name, but which in reality are indigenous in the mountains of Spain and not in England at all. They are now (June 24) in full bloom at Dosoris and lovely flowers they are too, bold and substantial, with large, showy blossoms,

white, pale blue, lilac, violet and many shades of intense blue-purple. They are among the cheapest of bulbs. Get a lot of them when you order your Dutch bulbs and plant them in clumps in the garden as you would narcissus in good, warm ground. They are hardy here and come up and bloom year after year. Spanish irises treated in the same way bloom a fortnight earlier.

THAT "MYSTERIOUS CROP," page 296—Three out of the four persons mentioned in that note have since then communicated with us on the subject, and given us considerably more light on it. The bottles that were buried were empty ones and used as an edging in the garden; they were planted close together, necks well down and bottoms up and all even in the row and level on top, as if they were a tile edging or curbing. An edging to garden walks and flower beds, of inverted, deeply set bottles, is not uncommon in old country gardens in Europe, we have seen it there, but we don't like it, and we earnestly hope the "celebrated amateur" will remove it from his garden. The landscape gardener denies them "Novice," knowing that his neighbor is deeply versed in chemistry and entomology, thought that the bottles were insect traps or destroyers. But the irrepressible brother-in-law having bought his knowledge of gardening in the school of experience gives "Novice" some sound advice. He writes: "You want to know whether spring or fall is the best time to plant bottles. Now, John, the experience you and I gained in our youth—by observation, of course—should not be forgotten by you. Most bottles should be planted before you fall, and the deeper the better, and moreover, they should never again be disturbed. 'What will they raise?' you ask. Well, that's uncertain. If not planted soon enough and deep enough they often raise Cain."

The Greenhouse.

VARIOUS QUESTIONS.

BY A. W. MOYSHER, IOWA.

1. THE FLOWER BUSINESS PAYS.—"In a small village of three hundred people my business is paying. I may say, however, that it is only a side issue, for I am a woman and a housekeeper."

And that is just how it will pay. You get pleasure and profit both out of your greenhouse and garden, and instead of being hard work to you it is recreation and rest and a happy change from your domestic duties. There is health, strength, interest, love, and pleasure in it. In truth if many of our sickly ladies would turn their attention in the same way to their gardens in summer and a little greenhouse in winter it would do them more good as regards health than all the medicine in the drug store.

2. WANTS A BIGGER GREENHOUSE.—"We want to enlarge our little greenhouse. How would it do to excavate simply for the center walk, board up the sides, and use the natural level of the ground for plant benches?"

Not at all. True, it looks reasonable, but it isn't. For violets it would be all right, and so too it would be for lettuces, radish, spinach and parsley, but for a general assortment of plants it would be wrong. It would be hard to keep up a steady temperature in it in winter, and in dull weather damp would be very bad in it. Far better excavate the whole space within the house to the floor level, and have the benches above the ground level. If you visit the greenhouses of leading florists, you will find that they keep their plant benches well up above the ground level, and except in the case of violets and pots for storing plants in over winter all the sunk houses are excavated the full depth between the walls of the building.

3. WHAT TO FILL UP WITH IN SUMMER.—"My seedbed in one corner of the greenhouse is just empty. What would be best to plant it to now?"

What depends on circumstances local with you and of which we have no knowledge. We presume it is a warm, shady, moist corner; then it is just the home for many Rex and other fine begonias, ferns, palms, dracænas, and the like, spread them out to give them room. If it isn't too close it would be a nice place to start cinerarias and calceolarias in. Many think it is a pity to have the greenhouse empty in summer, and so it is if you have appropriate plants to fill it, but if your plants are better in the open air in summer than in the greenhouse, then it is cruelty to keep them in it.

4. "I had dahlias, geraniums, cannas, verbenas, cuphea, scarlet sage, ageratum, pansies, golden feverfew, chrysanthemums, etc., in all over thirty sorts. I want to fill it now for winter with about the same number of sorts."

As your greenhouse is small everyone of those plants is better outside than indoors. But you can propagate and pot a few geraniums, and pot some chrysanthemums, getting them ready for fall and winter flowers, even a few cannas may be potted up, but they all are better plunged out of doors than taken into the greenhouse. Plant the dahlias out and let them alone till fall. Verbenas are easily raised from seed sown in January to March, or a few rooted cuttings may be secured in September, August is soon enough to strike cuphea. Sow seed of scarlet sage in March, pansies in July and August, and golden feverfew in February and take slips of ageratum in September or October.

5. BOUGHT DIRTY PLANTS.—Have we retailers any rights that wholesalers are bound to respect? I got a supply of Papa Gontier roses from a wholesale firm, and when they bloomed they were a delicate flesh color. A lot of coleus and oleanders I got were filthy with scale and mealy bug, and some chrysanthemums from them were black with aphides."

As regards wrongly named or misrepresented plants you have redress. In the case of the vermin-infested plants, however, you should have returned them as soon as you got them and examined them and found them dangerously dirty, or at least notified the florist of their condition and that they were unsatisfactory, and you would not accept of them. If you paid for them before you got them, though, perhaps the easiest way out of the difficulty, is to let it drop.

OTAHEITE ORANGE.

F. C. D., Conn., asks: "What shall I do with my Otaheite orange, which was in the house all winter? It blossomed full from January to April and now has considerable fruit set. I have it in the same pot as it was in in the house and sunk in the ground, it is growing and looks thrifty. Will it do to wait until fall before repotting?"

We cannot tell except in a general way. It doesn't need a big pot. If the drainage is clean and perfect and the plant is healthy and growing well we should be inclined to let it alone. Should the drainage be clogged to the hole and the earth soapy with worms we would repot the plant, picking out the worms, and remove the old drainage and as much of the soil as can well be done without injuring the roots; then repot into a clean pot, well drained and use fresh loamy soil mixed with leaf mould. Pot firmly. Plunge out of doors in a bed of coal ashes, or at least put a lot of ashes into the bottom of the hole you plunge the pot in to exclude worms. Sprinkle overhead twice a day for a few weeks and shade from hot sunshine.

WHY WON'T THE ORANGE TREES BLOOM?

W. E. B., New Haven, Conn., writes:

1. "Is it true that orange trees fail to blossom in northern greenhouses unless grafted? I have heard that such is the case, and have known of trees grown from cuttings that have not bloomed, though they are now seven or eight years of age?

2. "How old ought a tree to be, in order to blossom and produce fruit?"

1. No, not exactly. It is with orange trees as with apple or pear trees, seedlings in their early life are apt to run to wood more than to fruit, but age and restricted food and root room will bring the most stubborn tree to terms and make it flower in a northern greenhouse or anywhere else where it will live. But what's the of it? Our mission is to help nature, not defy her. The seedling orange gives us a healthy root, and to obtain particular varieties and early fruiting qualities we bud or graft the seedling stocks with cions from bearing trees. And as we use the quince stock to dwarf the pear so we use seedlings of a dwarf species of orange tree on which to work the greater oranges and fit them as pot plants.

2. Much depends upon cultural conditions. Usually 2 years for dwarfs, and may be twice as long or more for others.

SOME PRETTY GREENHOUSE PLANTS.

"THE SCARLET FREESIA," *Anomatheca cruenta*, is a beautiful little bulbous plant resembling a freesia, except in color, which is soft rose, the three lower petals having each a blood-red stain. It lasts long in bloom, and is a beau iful contrast with the freesia. [The name "scarlet freesia" is unfortunate, even misleading. True, both the *Anomatheca* and *freesia*, belong to the iris family of plants and are natives of the Cape of Good Hope, but the first named although it has been in common cultivation in greenhouses for fifty years, has never taken with the people as the freesia has done. At the same time it is a real pretty little plant and of the easiest cultivation, and if allowed to ripen and scatter its seed it will naturalize itself on the floors and benches of our greenhouses as rivinia, Zanzibar balsams, and dalechampia do. The name "scarlet freesia" was given to it a few years ago by some of our florists who were "booming it" as a novelty.—ED.]

SAINTPAULIA IONANTHA is in bloom with us just now. It is a little gem related to gloxinia. Its flowers are deep violet blue, and its stamens are clustered tightly in the center, forming a golden yellow speck.

OXALIS.—Two beautiful little summer blooming kinds are the rose and white forms of *floribunda*. They are dainty little plants blooming in the bright sunshine, but they close up their flowers in dull weather. They are useful for filling or fringing vases. They are of easy culture, simply keep them in a dry cool

place all the winter till you want to start them in the spring, when you can divide and repot them.

AGAPANTHUS UMBELLATUS, blue and its white variety are now coming into bloom. We stow them away in a cool house over winter, and place them in a conspicuous position around the greenhouses in early summer, where they are always admired when in bloom. We place saucers filled with water under the pots. As they are vigorous growing plants they require plenty to eat and drink. When the specimens get too large divide them, as they will not give satisfactory results if too much pot-bound. Do not pot them too firm, as when their fleshy roots commence to swell they may burst the pot. We have a plant of the white flowered one that produces blossoms along the side as well the terminal end of the scape every year. Is this unusual? [Although rather unusual, we now and again find liliaceous plants of several genera behave in this way. Sometimes it is caused by over-luxuriance, at other times, as in the case of the Baronald plant, it is probably a bud sport or a seedling variation.—ED.]

Baronald, N. J. WM. FITZWILLIAM.

FORCING SPANISH IRIS.

D. S. M., Watertown, N. Y., "sold Spanish iris to one of our florists, and he started them under heat early in the winter, and made a failure. Is there not some way to manage so they can be used as florists' flowers? They would seem to be a very desirable addition."

Hardy plants used for forcing in winter are generally those that bloom in early spring, but the Spanish iris flowers (at Dosoris) during the first half of June; that in itself would suggest to go slow in forcing if you want success. It is a very easy matter to force it so as to have it in bloom at Easter, but we should disadvise hurrying it up much earlier. Pot the bulbs in August, rest them long and thoroughly, as one would Dutch bulbs, and start them in February.

SEEDLING CHRYSANTHEMUMS.—C. F. D., Iowa, writes; "I have about 100 seedling chrysanthemums 5 to 8 inches high, growing nicely in the open ground. When should they be lifted and into what sized pots should they be put for producing single blooms in 6-inch pots next fall?" It all depends upon the size of the plants and the trouble you mean to take with them. Seedlings generally grow rank, making lots of roots, so unless lifted and potted soon they may get too big for even a 6-inch pot And if you let them stay till late, then have to shake the dirt away from them to allow you to get them into the 6s they are apt to lose their lower leaves. In a general way we would say lift and pot them about the first of August directly into 6-inch pots, and pot firmly.

VIOLETS.—E. C., Va., asks: "Will you please tell me of some work on the cultivation and care of violets." There is no special work on the subject that we know of. But there is an excellent chapter on it in Hunt's book "How to Grow Cut Flowers."

The Fruit Garden.

STRAWBERRIES AND ROSES.

F. C. C., Bath, Maine, writes: "I wish to reverse the positions of my rose and strawberry beds, and not lose my next summer's berry crop. Now would I lose many berries if I pot the runners in July into 2-inch pots, and then, when they are established, shift them into 6-inch ones and keep them sunk in the ground until I can lift the rose bushes in October?"

No. But don't use 2-inch pots, use 4-inch ones instead. In potting the strawberry plants, take a steel trowel and a lot of pots that have been rubbed clean inside, out into the bed. At every runner you wish to secure, scoop out a trowelful of dirt and sink the pot up to the brim or over it in the hole, fill it with nicely prepared fresh soil, then heel the runner into it without severing it from the parent. As runners often have two or three sprouts, take the strongest ones, and pinch off the part beyond it. The layers will soon root into the fresh soil in the pots. About the middle of August or as soon as they have become well rooted sever them from the parent plants, repot them into 6-inch pots and plunge them close together in a bed of earth or ashes, and plant them out as you suggest early in October. Instead of repotting them into 6-inch pots however, we would rather turn them out of the 4s and plant them close together in a bed, to stay there for a month or six weeks till the old rose bed should be ready for them, then plant them out permanently. This avoids getting the roots so much matted together as they would likely be if kept long in pots.

STRAWBERRIES.

Now that the strawberry season is practically ended, it is in order to talk over the new things which have come under our observation, to fairly estimate their worth and to compare them with the older and better known varieties.

Last summer, as early as potted plants could be procured, I set out a row across my garden each of Parker Earle and Timbrell. The soil was in good condition, having been generously treated with stable manure and commercial fertilizer. They were given the best of culture and made a good late summer and autumn growth. They were heavily mulched with coarse stable manure after the ground had frozen, and the covering was left on rather late. Both rows were covered last spring to save them from the effects of frost—a work which paid me well. In the spring, the ground received a liberal dressing of muriate of potash. So much for preliminaries, now for results.

The Parker Earle outgrew the Timbrell, though the latter did well. When they began to bloom it was notable that the Parker Earle had more than double the number of blossoms that its neighbor had and it continued to outgrow it. They began ripening with me about June 15, and seem to be about the same season. I judge that Parker Earle would not be particularly valuable for field culture except where it was possible to irrigate. It sets such a mass of fruit that without an abundant and continuous water supply, it would be impossible to mature it; it would result in a large number of "buttons" or imperfectly developed berries. It reminds me in this respect of the James Vick, a variety which looked like a deutzia bush when in bloom, but which never was able to mature but a most insignificant crop of fruit. Where it can be irrigated or drenched with a garden hose, it is a most prolific sort, excelling in this respect any I have ever grown. The fruit is long, largest in the middle, pointing to both ends, of fair quality and solid enough to ship well.

The Timbrell bears a good crop. Its habit of ripening unevenly—its patchy appearance when not quite ripe, is its only fault on my grounds, and that is not of great importance. Left until well ripened it will be of solid color, outside and in and it is by all odds, the best in quality of any berry with which I am familiar. Whether it will ever be a desirable market sort may be fairly questioned, but its superb quality makes it an indispensable variety in the home garden. I value it more highly than ever.

Among older varieties, I still have a warm regard for Cumberland Triumph and Kirkwood, both perfect flowered, both vigorous and productive and of good quality. Bubach is also an excellent market berry—large, handsome and productive. To this trio, add Haverland and you have a quartet of good, reliable croppers and standard market sorts.

I hear high encomiums of Marshall, a new berry which is said to rival or exceed Timbrell in quality, and these come from men in whose judgment I have confidence. Brandywine is also highly spoken of and by those competent to judge.

Port Jervis, N. Y. F. G. FOWLER.

[When a new strawberry is "sent out" at ten dollars a dozen young plants as the Marshall was two or three years ago we are apt to give it pretty good treatment, so we planted our Marshalls in the best and moistest bit of ground we had. It grew splendidly, and maintained its sturdy vigorous foliage all summer, not resting in the least. It bore a heavy crop of fine fruit of deep red or crimson color and excellent quality; some of the earlier berries were quite large—5 inches around but the large majority were smaller. Taking it altogether, however, except in form of berry and fine quality, we prefer Sharpless, which is still king among strawberries on Long Island.—ED.]

STIRRING THE SOIL IS BETTER THAN MULCHING.

In 1853 I planted a pear orchard of 1,500 trees, about a fourth of which only I was able to mulch; the balance I cultivated as effectually as we do a cotton field or vegetable patch. The result was that those not mulched grew far better than those that were. For the last fifty years I have practiced mulching more or less for many things, and with always the same result—that the plants that were cultivated often and thoroughly invariably did better than those of the same kind and planting that were mulched, so now I am convinced that the more and better you stir the soil among growing crops, be they of the field or garden, the better it is for them, and far better than any mulching, for it admits air, moisture and natural gases, which are the life of the plants, to the roots. Mulching doesn't do this.

JAMES STEWART.

Elmwood Nursery, Memphis.

FROZEN GRAPE VINES.—An experiment with frosted grape vines has settled it that the best thing to do when the shoots are killed back is to immediately break out the frozen canes and let new ones grow from adventitious buds, and the remaining double buds. A half crop can usually be got from the latter. If not broken out shoots finally start from laterals and next year's buds, but these are unhealthy and the vine seems much injured. D. S. M.

Watertown, N. Y.

I HAVE NEVER yet had any horticultural paper which I enjoy nearly so much as GARDENING. T. C. W.

Cambridge, N. Y., June, 1895.

The Vegetable Garden.

ASPARAGUS.

Growing asparagus from seed results, as with all plants so grown, in a considerable variation. It is true that varieties more or less fixed in their characters are propagated from seed; indeed I am not aware of any other method generally practiced, if at all. Birds seem to be fond of ripe asparagus berries; and from seed apparently so distributed many plants have grown up during the past thirty years upon my old "home place." Usually there has been nothing special about these volunteer plants, except some difficulty in eradicating them, to attract attention. But some six or seven years ago a monstrous volunteer plant appeared, growing in thick grass, yet yielding stalks a full inch in diameter. I have never heard of dividing asparagus plants as a method or means of propagation, either for domestic use or commercially; but so many visitors have remarked this "crow-bar looking" specimen that some little time since I had it dug up. This was no small job, for the roots, though cut close with a nursery spade, made a mass scarcely smaller than an old fashioned molasses hogshead. Saws and sharp spades were brought into service for its sub-division, with smaller tools for dividing bud from bud; and these fragments were set in rows in the garden. They are growing very well for the first season; but before expending much more effort in this direction I should like to know whether this way of propagating asparagus has ever been practiced among market gardeners. It would appear to be the only way to propagate a distinct variety, as seedlings would certainly vary widely, and probably might prove, for the most part, if not wholly, unlike the parent. I am almost alarmed to think of the size which heads of this plant would present under clean culture and heavy manuring. Yet perhaps now it has been removed from its birthplace it may not recover its original vigor. But if it should do so and propagation by sub-division prove a success it might really become the parent of a new and desirable strain of this useful vegetable

T. H. HOSKINS.

There is nothing new in propagating asparagus by division; we have done it ourselves and seen it done several times by others. In the case of such fine varieties as the one you have secured, by division is the proper method of increase. But don't wait till the plants get so big and old as your one was before dividing them; there is a risk of losing some of the middle cuts in such large root stocks. Take an ordinary asparagus field (raising asparagus for market is the principal money crop of the farmers around Dosoris, for we are in the thick of the Oyster Bay asparagus district, with its broad acres of "grass," and several canning factories) and mark the number of distinct varieties of "grass" one can get in it; some are pale green, some rise almost white; some are deep green, others have a purplish tinge; some rise up several inches above ground without feathering, others begin to feather almost at once; some have very large "grass," others more slender stems; and some become loaded with berries, while others appear to be perfectly sterile. At the same time the general average of the field is the same. Then why don't we hold and per-

[CONTINUED ON PAGE 316]

NOT TO BE TRIED. ALREADY PROVED.

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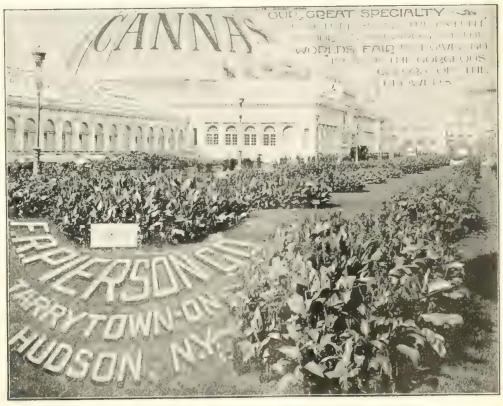

petuate some of these more desirable plants? Because the bother of selection and perpetuation is too great and won't pay. Anything we can perpetuate true to type from seed is all right, but when it comes to increasing the stock by division the people won't do it, there is too much trouble about it compared with raising the plants from seed.

PLANTING CELERY.

A correspondent asks: "Do you advise celery to be grown in trenches, or on the surface and then earthed up?"

In trenches, even at the risk of being called old fogy. As a rule market gardeners plant in rows on the level, as they would cauliflower or any other crop. We mark off our rows 3½ to 4½ feet apart, according to whether we are going to plant one or two rows in it; and in our best land we make them 5 feet apart. Then we throw out a trench about 10 or 12 inches wide and 4 to 5 inches deep. Scatter some short manure in this and fork it under, making the earth quite fine. Then plant. Now if dry weather strikes us, and we have got to water freely, the trench will hold the water to the plants; when planted on the surface watering celery is a tedious job, and the plants don't always get as much as they would if it didn't run away so easily. And when it comes to earthing up, especially if boards are used, the trench has great advantages over the level system. Then again if we go by the quality of the mature celery—well, we are going to stick to the trench.

THE CORN WORM.—We await the coming of the first mess of sweet corn about as anxiously as we do the first picking of strawberries, but how disgusting and disappointing it is when we find that every ear of the early corn is infested and channelled by the dirty looking larvæ of the corn worm. Just as soon as the corn silks we look out for these worms. The moth lays its eggs among the silk. In a few days they hatch out and the young larvæ make their way to the ear, beginning at the end of it. Then is the time to catch them. We go over every ear, open it a little bit at the end to see if there are any worms in it, and kill them if there are. With this care we get nice corn; without it the corn is practically destroyed. Any hills missed are sure to be infested. Tedious as it is, it is the only real remedy.

THE VEGETABLE GARDEN.—Our practical notes on this subject in last issue are largely applicable to work to be done now, and to avoid repetition we refer our readers to them.

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15,000 " purple leaved, 2 to 3½ ft.
20,000 Buckthorns, 2 to 4 ft.
30,000 California privet 3 to 6 ft.
10,000 common privet, 3 to 6 ft.
5,000 strong Multiflora and Sweet Briar Roses.
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are best shipped and grown on for Winter use in Summer. Earlier the better. We have have thousands of the choicest things in Plants cheap. Rarities as well as old favorites—Palms, Ferns, Orchids, Grasses, Cactus, etc., as well as Fruit and Economic Plants. ☞Send for large Illustrated Catalogue TO-DAY. It's free.

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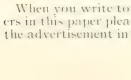

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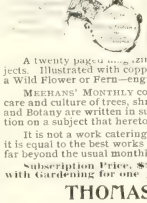

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Miscellaneous.

A ROSE LEAF EATING INSECT.—Medicus, New York, sends us a rose leaf with incisions cut in it by some unknown pest. Immediately on receiving it we went out into the Dosoris rose beds and found a good deal of the same kind of work. On examination we concluded that it was the work of a "worm" or caterpillar, and done at night. On searching in the ground about the roots of the roses we found the marauder, and brought him home and fed him; he eats two square inches of rose leaves a night. At 11 p. m. the same night we took a lantern and searched through our rose beds, and found another species of caterpillar eating away for dear life; we brought it home also and fed it, and find that it eats a little over an inch of surface in a night. So now we have submitted both species to Dr. J. A. Lintner, our state entomologist, for his opinion. These "worms" are not numerous. As a remedy we would suggest hand picking only. Of course we could poison their food with hell. bore or arsenic, but this is an extreme measure, and unless the pest be very numerous and destructive, we disadvise it.

THE GOLDEN OAK SCALE is the greatest enemy, so far as we know, and this very distinct oak has got, and most of these oaks seem to be invested with it. A lady who was here the other day told us that her trees were full of this pest but she had it scraped off of them clean in winter, getting rid of it entirely. As this oak comes true—at least many of the seedlings are golden-leaved—from seed we would suggest that a young stock be raised in this way and kept removed from older specimens.

A WORD ABOUT GARDENING: A friend living in Chicago gave me the subscription for a Christmas gift. She said "there is not a magazine of the kind to compare with it." I quite agree with her. No sooner do I finish reading one number than I wish we could skip the next two weeks so that the next one would come. G. C. G.

Brooklyn, N. Y., June 17, 1895.

NO OTHER PAPER of the many that come to me receive the careful and prompt attention that GARDENING do s. It is a fine, up-to-date publication, and unlike some others of a floral nature, while filled with the best, it does not soar beyond the comprehension of the amateur, and is very practical. Thank you for it.

McIntire, Iowa, June 13, '95. V. W.

THE RAINMAKER NOZZLE AND THE MICHIGAN WEEDER.—T. C. W., Cambridge, N. Y., asks where he can get them

Get the nozzle from M. M. Jones, 6122 Oglesby avenue, Chicago, and the weeder from the Michigan Wire Shovel Co., Niles, Mich.

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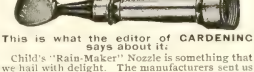

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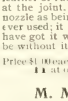

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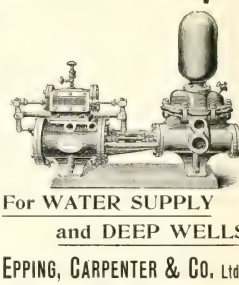

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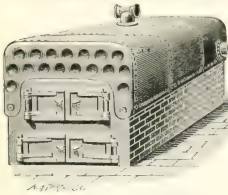

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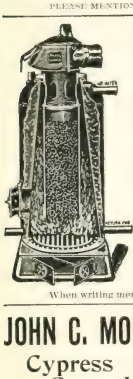

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Send for price list and samples and we know you will give us an order.

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For Your GREEN HOUSE, ROSE HOUSE, NURSERY, Conservatory, Lawn, House, Garden, Stock or any other purpose.

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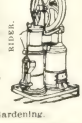

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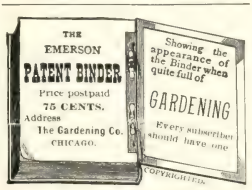

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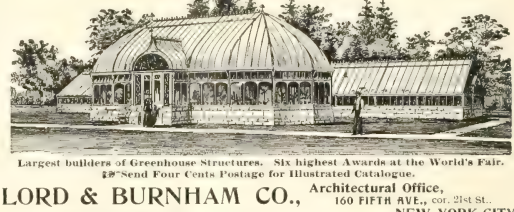

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GARDENING

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BED OF CROTONS AT GIRARD COLLEGE, PHILADELPHIA

The Flower Garden.

A CROTON FLOWER BED AT GIRARD COLLEGE, PHILADELPHIA.

Our illustration shows a bed of crotons at Girard College, and has been engraved from a photograph taken there last summer. The narrow leaved croton bordering the bed is *aureum pictum*, the others are mixed sorts, arranged according to their size. The outside plants were six to eight inches in height, and the center one grading to six feet. Crotons are splendid plants for bedding out in this country, luxuriating in full sunshine as well as partial shade.

In winter Mr. Huster, the gardener, grows the crotons in a greenhouse in a strong heat (70°) and good soil, keeping them growing all the time, and their variously colored foliage renders them very useful as ornamental plants in the conservatory in that season.

The ivy covered wall shown in the picture is the boundary of the college grounds on the Girard avenue front. Both the English ivy and the Japanese ivy (*Ampelopsis Veitchii*) are grown together. Mr. Huster says he likes the appearance of the Japanese one best, but as it is deciduous he has the English one growing with it to have green foliage on the wall in winter. The large tree immediately back of the bed is a tulip tree, which is abundant hereabouts in a wild state. Close beside it are ailantus and white ash trees. The trees on the outside of the wall are the much planted and much abused Carolina poplar (*Populus moniliferа*). As usually seen about Philadelphia it is a disgrace, but Mr. Huster by a little annual pruning has made them model trees, and the best of their kind about this city. JOS. MEEHAN.

Philadelphia.

CHRYSANTHEMUM BLACK APHIS.

W. B. C., Central Falls, R. I., writes: "My chrysanthemums are covered with small black lice. Whale oil soap and insect powder don't touch them. What will?"

We use tobacco tea and tobacco powder. The tea we get by steeping tobacco stems over night in a pail or tub of water. Next day we take this liquor in a pail to the chrysanthemum patch and with a sponge swab the ends of every affected shoot, and in an hour or more swab or syringe them with clean water. If the tea is too weak it is little better than clean water; if too strong, it will injure the shoots. When the plants are wet with dew get some very dry fresh tobacco powder or snuff, put it into a powder bellows and puff it on to the affected plants. In the greenhouse by repeated fumigation with tobacco we can kill these insects, but outside fumigation is impracticable; indeed it is a troublesome pest to get rid of and requires repeated efforts to

destroy it. If you would know how woefully deficient our books on injurious insects are look for mention of this aphis in one of them, an insect that is and has been for many years abundant over the face of the earth, and a pronounced garden pest everywhere.

SHADY CORNERS.

How unhappy many people are over the shady spots under trees where the grass will not grow, and how much time and money they expend in trying to keep out plants that enjoy such places, and in trying to keep in grass that cannot be made to succeed. These shady places can be made more interesting with less care than almost any other part of the grounds if the conditions are once made right. To learn what is right one may study to good advantage similar localities in the edge of woods or in fields that are not too closely browsed by cattle or sheep. You will find a fringing of shrubs under the ends of the branches of the trees that almost completely hides the wild and leafy mould from the more finished hay field or pasture outside of the group. Under the trees is a covering of rich loose leaf mould, and in this leaf mould there are growing, or there can be made to grow, many of our most beautiful native flowers, such as the trilliums, bloodroots, hepaticas, anemones, lady's slippers, Solomon's seal, bane berry, cohosh, rue anemone, violets, twin leaf, pyrolas, wintergreens, and no less than thirty kinds of ferns. Nothing can give a lover of nature more pleasure than to personally superintend the making and filling of such a wild garden, and if he be a traveling man he will have an opportunity of picking up many choice mementoes in the way of plants.

WARREN H. MANNING.

Brookline, Mass.

CARPET BEDDING.

[Condensed from a paper read by Mr. James Gurney, before the Garden Improvement Club of the Missouri Botanical Garden.]

Carpet bedding consists of the tasteful arrangement of many diminutive, rosette, and other garden plants, that could not by themselves be easily used to good advantage in the ordinary way of planting flower beds or borders. The use of the term "carpet bedding," does not by any means imply that we must have a bed of plants of different colors, with the surface of all kept flat as may be often seen, but it does suggest to my mind a circle or oval cut in the grass, and a system of small beds arranged in the prettiest way the mind can devise within these lines, not forgetting the proper blending of colors, and taking care that each plant shall have as suitable and complete decoration of its own, as though a separate bed was appropriated to its use, and after a whole system of these little beds has been arranged, place a suitable ground work of plants between the whole, and have a complete bordering of some suitable plant. As no two faces are alike out of the thousands we see daily, so in like manner, no two persons' tastes are alike, were it otherwise we should all dress alike, the bonnets would all be trimmed alike, and the gardens all planted alike. But every person has his own likes and dislikes, even in his own garden arrangements. Both style of planting and arrangement of colors have have to conform to one's taste, otherwise we shall be discontented, and disappointed. Fashion influences our tastes, our likes, and dislikes, and most of us are slaves to it. In my early life I do not remember any attempt to decorate the flower garden by "carpet-bedding"; but when it was introduced it quickly became popular and infused new life into the plant trade. That discovery was exactly what man is ever looking for, namely, a change and every available plant suitable for this purpose was brought into requisition, and many which had never been looked upon as decorative before proved to be the very things needed for this purpose..

Undoubtedly this style of bedding has seen its most popular days, but it has given pleasure to millions, and won over thousands to decorate their home surroundings who had never done so before. Of late, however, there has been a spirit of unrest on this subject arising from its having been used too extensively and for so long, and until all novel plans were exhausted, and from being so peculiarly striking it has become tiresome, instead of pleasing.

Many are enthusiastically advocating the use of hardy herbaceous plants, and say that a fine, and highly decorative effect may be attained by their use only, but I have never seen the bed or border, or system of beds or borders of hardy herbaceous perennials alone which throughout the season was capable of exciting the admiration of the masses, as carpet bedding has done. Carpet bedding as a garden decoration is when used to a moderate extent desirable. But to enhance one's pleasure from his garden one ought to have also a good collection of hardy herbaceous plants and shrubbery, and all distinctly named.

FLOWERS AT EGANDALE, ILLINOIS, JULY 4.

Among the climbers in bloom is the Texas scarlet clematis (*Clematis Viorna, var. coccinea*) which is perfectly hardy with ordinary mulching. Being strictly herbaceous, it dies down to the ground in the fall. Its peculiar fleshy, campanulate flowers are quite freely produced the greater part of the summer. Books give its height at four to six feet; with me it grows twelve to fifteen.

Clematis kermesina, a form of *C. Viticella*, bear an open flower of a peculiar claret shade. The earlier blooms often have the petals tipped with green, or an entire petal may be of that color. It is not a continuous bloomer, but well worthy of cultivation. With me, this and the preceding are from disease.

C. Jackmanni, and several other large flowering varieties, always welcome, are in bloom, and lucky is the person having one free from disease. A gem in its way is the recent French introduction, Madame Edouard Andre, of the *Jackmanni* type, and blooming on the new wood very freely. Its flowers are of a medium size, and a beautiful velvety red color.

The Grecian silk vine, *Periploca græca*, displays its brown star-shaped flowers in a modest way. It stood last winter in a trying situation unprotected.

The climbing rose Prairie Queen is past its best It is unquestionably hardy, but the difference between plants that were protected and others left unprotected, in foliage and flowers, plainly say "give me some shelter from the winter blasts."

The Crimson Rambler is in its prime. The new climbing rose, introduced this year under the name of Empress of China, has started off well, small plants blooming quite freely; flowers are medium-sized and of a pleasing shade of pink.

The tawny day lily, *Hemerocallis fulva*, is unworthy of a place in the border, but set in the wild garden on the shady banks of a ravine it is stately and handsome, and holding its own among the wild plants, even overshadowing the indigenous black-eyed Susan. Thunberg's day lily is a good border plant growing three feet high and bearing flowers of a rich lemon color not unlike those of *Hemerocallis flava*, but they are not sweet-scented. Its late blooming habit makes it desirable.

Lilium umbellatum is another robust flower that is at home in the wild garden and thrives in the shade. This year the late frosts destroyed the bloom buds in open beds but not in the ravines. The Madonna lily, *L. candidum*, proves hardy with a good mulching and where water will not stand in winter. Besides those wanted for cut flowers, plant a group of it in front of some dark shrubbery, and when it is in bloom view them across a green lawn, and if you do not love them the fault is yours.

The fox-glove pentstemon (*P. Digitalis*) with its white flowers all along a stem two feet high, and the perennial yellow fox-glove are suitable outskirt companions for the well known biennials *P. barbatus* var. *Torreyi* is a tall-growing species having light red flowers along the stalk; if well grown and neatly staked it makes a striking plant.

The common everlasting pea (*Lathyrus latifolius*) presents a fine sight scrambling over some brush arranged at the base of an old vine-covered stump. The white form is the handsomest, and although scentless it is fine for cutting. It grows three to four feet high and dislikes removal.

Anthemis tinctoria var *Kelwayi*, is an improved form of the "Hairy Golden Marguerite" with lemon-colored flowers on long stems. Its habit of drooping its petals at sundown is rather against it.

The narrow-leaved purple cone flower (*Echinacea angustifolia*) with its rose-colored many pointed star-shaped flowers held two or more feet above the ground belongs in the shrubbery rather than in the border, as it is suggestive of sylvan scenes. Its congener, *E. purpurea*, not yet in bloom, is more showy.

Euphorbia corollata, the white flowering spurge, grows wild along the railroad tracks. Brought into the garden and given ordinary cultivation it furnishes graceful open umbelliform inflorescence of small white flower bracts very useful in bouquets.

Frazer's evening primrose (*Œnothera Frazeri*) contradicts its popular title by its flowers being open all day and closing in the evening. It is very free flowering, has clear soft yellow flowers and is dwarf and compact. It is desirable for giving color in the shrubbery.

The Pennsylvania wind flower (*Anemone Pennsylvanica*) is effective in wild-gardening or as an under-shrub. It grows about two feet high, is bushy and compact, bearing sparingly white flowers an inch in diameter

The horned poppy (*Glaucium Fischeri*) is ornamental in the shrubbery where a glaucous cut-leaved foliage is desired. It grows about two feet high and flowers freely, producing a reddish-orange bloom that is uninteresting and fleeting.

The curious witch's thimble (*Silene maritima*) is useful for a low border. It forms dense turf-like masses of a very pale green some four inches high, with numerous small white flowers.

The Alleghany dicentra (*D. eximia*) makes a charming edging where taller plants are grown behind it. It grows about one foot high, and bears small coral-colored flowers nearly all summer, which are not attractive, except in the bud, and especially in the spring, when

A VINE-CLAD WINDMILL DERRICK.

they are most numerous. Its charm is in its graceful, finely-cut fern-like light green foliage. It is perfectly hardy.

The Carpathian bell flower (*Campanula carpathica*) in its white and blue forms grows about ten inches high and flowers freely from now on, making a useful border plant. Its upright bell-shaped flowers are attractive. The Chinese bell flower (*Platycodon grandiflorum*) is a gem in any collection after it becomes well established, and it blooms freely from now until September, standing three feet high and carrying its flowers well above the foliage. The buds are like an inflated balloon, opening out into large star-like flowers. The type is blue, but the white form is more effective when there is a back-ground of shrubbery. This plant is often catalogued as a *Campanula* or *Wahlenbergia*.

Alstromeria aurantiaca, sometimes called the Peruvian lily, is a native of Chili, and although it has been long in cultivation it is but little grown. It is precariously hardy, but if in well drained light soil, well covered with dry leaves and an inverted box placed over it to exclude the moisture, it winters well. Plants so treated last winter are doing better than those wintered in a cold frame. They flower all summer, bearing on terminal stalks three feet high orchid-like flowers of a rich orange color, that last well when cut, each bud opening out.

The newer forms of the perennial larkspurs, if a good strain has been obtained, are grand. With good cultivation they rank with our showiest perennials. Any person seeing the semi-double forms, and not loving flowers forever afterward, does not belong to this world, and should depart—below. The most delicate shades of blue and pink are blended and commingled as only Nature's brush can paint. The plants send up their brilliant spikes five or more feet, crowded with blooms often over two inches in diameter, forming a flower spike nearly two feet long, requiring staking to prevent damage by wind or storm. They will bloom more or less all summer if not allowed to ripen their seeds. Mulch them well with manure in the fall and they will repay you with interest next summer. The showy larkspur (*Delphinium formosum*) must not be overlooked, with its fine spikes of indigo-blue flowers freely produced on tall stems, or the more dwarf Chinese varieties, among which is a charming shade of light blue. [White also, and semi double. There are likewise tall and dwarf varieties. The delphinium known as *Breckii*, is a variety of this species—*D. grandiflorum*.—Ed.]

Among the spiræa shrubs in bloom we have the extremely dwarf *S. bullata*, *S. Bumalda*, *S. Billardii*, *S. sorbifolia*, *S. callosa* and *S. Lindleyana*, the latter is line with its white feathery panicles, held like upright plumes above the foliage.

The golden elder and its variegated relative are in their best form. The former is particularly handsome. The flat corymbs of white flowers resting upon the golden-green foliage is striking. It requires rather a dry sunny position to bring out its best color, and it should be severely cut in each spring to insure density.

Deutzia Pride of Rochester, a form of *D. crenata*, has large double flowers externally tinged with pink; it is one of the best of the species, but the other varieties *Watereri* and *Wellsii* are all good. This genus requires winter protection here. *Hypericum Moserianum* requires the protection of a cold frame, and a severe cutting back when planted out, as it blooms on the new growth. Its beautiful large yellow flowers on pendulous branches, freely produced all summer, fully repay any care bestowed upon it.

W. C. EGAN.

A VINE-COVERED WINDMILL DERRICK.

Mrs. F. Norton Biggs, one of our subscribers in Indiana, sent us the beautiful photograph from which our illustration has been engraved. Now if there is one structure more than another about our homes that seems to be forgotten it is the windmill. Go where we will, east or west, it is very seldom indeed that we find the least attempt to adorn the windmill derrick; still there it stands, an excellent trellis for vigorous vines, and shameful in its nakedness. But our illustration is a pointed suggestion, a happy picture of the use such derricks can be put to. And we earnestly hope our other readers who have such buildings at home will go and do likewise. There are many vines fitted for this work, for instance, Virginia creeper, trumpet creeper, pipe vine, akebia, wistaria, silk vine, flowering grape vine, actinidia, the fleecy clematises, and others. Before planting them, however, make abundant provision for their welfare by digging out and removing the poor soil to two feet deep and replacing it with good loam.

We shall now let Mrs. Biggs tell us about her beautifully ornamented derrick. She writes:

"I send you a photograph of our windmill derrick, which supports some very fine vines. You are looking at the north side. On the northwest corner is a mass of the European Traveller's Joy (*Clematis Vitalba*) whose creamy white flowers—no fruit—were in glorious bloom when the picture was taken (in August, '94). On the southwest corner are wistaria and trumpet creeper, the latter had just ceased blooming after six weeks of splendor. I have never seen a more vigorous bignonia north of Philadelphia. On the southeast corner is a purple clematis (*C. Viticella*) with flowers nearly the color of *Jackmanni*, but only three inches across. I had a Belgian honeysuckle there too, but it having died it was replaced, temporarily, with cobæa. The northeast corner supports a coral honeysuckle, and the dainty yellow-flowered *Clematis graveolens*. To realize the height of these vines compare them with the sweet peas at the right of the derrick. They were six feet high. This beautiful

vine growth was remarkable because of the drouth from which we had suffered last summer, when we had only one two hours' rain in eight weeks. To make partial amends for that, however, we gave the vines a couple of pails of water a day."

PRIMULA FARINOSA AT HOME.

I would like to add a word to your answers to an enquiry about the hardiness of primroses, page 290. *Farinosa* is quite plentiful in my bailiwick, that is Northern Wisconsin or the northern peninsula of Michigan. I saw beautiful patches of it a month ago on the shore of Lake Michigan, but at its extreme north end. It was growing in springy oozy ground, and it is only in such a place that it ever will grow. I find it in the springy gravelly shores of the Escanaba River or growing in the crevices of the limestone banks right in the drip. It grows sometimes almost afloat in wet miry spots. In the garden it has done well with me in muck or leaf mold, but is smaller and less conspicuous than it would be in moist congenial ground. It grows in black muck or clear gravel, but always in a wet place and in full sunshine. I would be able to send plants to anyone especially interested, and would be pleased to help your correspondent make the experiment. C. L. M.

Milwaukee, June 23, '95.

SWEET WILLIAMS.

An amateur asks; "What is the proper treatment of *Dianthus barbatus* in summer? I have one exceedingly good, dwarf, rich crimson variety, but out of one dozen plants started with in the spring, eight only remain, and only two of these are vigorous."

Plant them out where the ground is a little moist and thinly shaded. So prone are sweet williams to die off with neck rot in summer that it is well to plant them in a bed or corner by themselves where they can get special attention. Indeed the safest way is to sow the seed thinly in rows or hills where you wish to have the plants grow and bloom and thin out the seedlings. They keep healthier in this way. Although it is a very common flower and runs wild in some old farm gardens, few kinds of plants die out in summer more than it does. We raise it afresh from seed every year.

SWEET PEAS.—Be sure to pick off every blossom as it opens if you wish to prolong the season of blooming. In dry weather give the rows a thorough soaking of water now and again. Where the seed had been sown thickest the plants die out quickest. Also observe that where sweet peas have been grown year after year on the same piece of ground they are not nearly as vigorous or healthy as when grown on land they had not before occupied. Take note of the different varieties in bloom. When comparing the new ones with some of the old ones the query "then, what's all the fuss about?" may occur to you.

Trees and Shrubs.

PURPLE BEECH AND PLUM, LILACS, TREE PAEONIES.

As far as I have observed both *Prunus Pissardi* and purple beech are perfectly hardy here. The former may prefer lighter soil than we can give it in Milwaukee, but there are numerous specimens doing well, and in Lincoln Park, Chicago, no less trying a place than this, it is a noticeable feature. The purple beech is abundantly hardy here and seems to thrive even in our clay. The natural home of the beech is in lighter soils, and all beeches are hard to establish unless sheltered and shaded when young.

Our winters are very trying, no broad-leaved evergreen does well here in the open, but our fall and late summer weather ripens the wood perfectly, and most plants that are hardy in northern New York do well here.

In its season no shrub blooms that is showier than lilac Souv. de Ludwig Spæth, striking by the color of buds and flowers. No shrub unless possibly a spiræa or tree pæony would surpass it or equal it for some special place of honor in the garden. Alphonse Lavallee is a very good double blue lilac with long pointed racemes and large striking starlike flowers. Pres. Grevy when unfolding shows a lovely tint of blue. But why do nurserymen give us grafted plants, when most of the newer varieties can be had in Europe on their own roots? To grow as bushes no grafted plant can be tolerated.

TREE PÆONIES in my own grounds and in gardens generally have come out of the winter unharmed. Mine are sheltered from the west by a bluff. I have known a severe winter that killed moss roses to kill a grand old tree pæony, but such winters are rare, and in the shelter of houses or with a location like mine I would call them hardy. The Japanese varieties are inferior to the German and French, but among a lot exhibited by Japan at the World's Fair I have a striking variety. It is a large semi-double flower, silky pure white with golden stamens. The foliage is regularly mottled with gold and creamy yellow; it is long and finely divided, and makes this a remarkably striking shrub. If not disseminated I think this entitled to an English name and worthy of distribution. In observing the flowers of these pæonies one showed a much finer color in lamplight than in the day time. The narcissus "Barri conspicuous" also strikes me as being improved in color by lamp light. C. L. M.

Milwaukee.

FILLING IN AROUND TREES.

R. W. P., Highland Park, Ill., writes: "Is there any necessity or advantage in boxing around the trunk of a tree about which the earth has been filled in to raise the level a foot or more. The boxing is certainly very unsightly in a lawn, and some say it is entirely needless. What is the idea in boxing, if it is necessary?"

In grading land we often have to peel the earth away from about trees that we wish to retain so as to get the necessary grade; we then head in the tree more or less according to the amount of damage we are likely to do to the roots, and leave a mound of earth around the butt of the tree; this supports the tree in the meanwhile and drives the main roots deeper into the ground and induces the production of fibrous ones beyond the mound. When we wish to raise the grade, and have to fill up with loam one or more feet deep the greatest danger to trees lies in smothering their roots, that is burying them so deep as to deprive them of ready access to air. One foot deep won't hurt them much, for they will soon send their roots into and through that; even two feet deep may not harm them, but deeper than that there is apt to be a check to growth if not permanent injury to the tree. This is more noticeable in clayey than light lands. Filling in earth around the trunk injures the tree in the same way stopping its air pores. Having a box around the sunken part of the trunk is very ugly on a nicely kept lawn, still it is beneficial when the depth is several feet deep. We would, however, fill the box with small stones free from sand. In fact if the filling is no more than three feet deep instead of using a box just fill in some rubble or coarse gravel next to the trunk of the tree, to allow a ready access of air.

SPIRÆA SHRUBS—HOW TO PROPAGATE THEM.

"Spiræa Bed," Bristol, R. I., asks: "Whether the various sorts of spiræa can be grown from cuttings, or are they grown from seed?" And adds "I have a bed of *Spiræa opulifolia* and *chamædrifolia*, and they have done wonderfully well even in a very exposed and windy situation."

Yes, they can be propagated from seed, but it is very seldom practiced because it is so much easier to raise them from cuttings. Take cuttings of the one-year old ripe shoots and cut them into 6 or 7-inch lengths, and insert these in rows close together in fall in a half shady place or in a cold frame. Or prepare the cuttings in fall, and tie them into small bundles and bury them out of doors till spring, and then unfasten and plant them out in rows. In storing them over winter in this way don't lay the bundles on their sides, but stand them perpendicularly, and bottom end up; when transplanting in spring, however, have the bottom end down. Spiræa shrubs are also propagated by layers, that is, by elbowing a shoot into the ground and letting it stay there for a year till it roots well, then sever the layer and lift, and transplant. But where only a few plants are needed you can generally dig up some rooted sprouts from the side of the old stools that make good enough plants. Indeed some kinds sucker very freely, affording ample opportunity of digging up these suckers, and getting young plants in this way.

TRANSPLANTING HARDY AZALEAS.—"Is it too late now to plant Ghent or hardy azaleas?"

If you mean to move them from one part of the garden to another, we would do it any time after the first good rain in August, and till the end of October. If you intend getting them from a nursery from the middle of September till the end of October is a safe time, and so is spring; in fact in regions where the winters are long and very cold, and the springs changeable, spring is the safest time. But in any part of Rhode Island early fall planting is perfectly safe.

RUBUS DELICIOSUS.

From the canons of Colorado comes this very beautiful shrub. Although it is a member of the raspberry family and gets its specific name because of its fruit (which to our palate is not at all delicious) it does not suggest its relationship in the garden, for while it blossoms abundantly it fruits but sparingly.

In cultivation it becomes a shrub 4 to 6 feet high with arching branches, which in May are covered with large, showy white flowers. Our illustration portrays them very truthfully. It is engraved from a photograph taken at Dosoris of a branchlet in bloom.

As regards hardiness we found it perfectly reliable even at Boston, indeed, the mountain plants of Colorado are among our hardiest garden plants.

In the garden it should stand alone, that is be far enough away from other

RUBUS DELICIOSUS.

shrubs to allow its arching branches to spread themselves without being cramped by neighboring trees or bushes. And it shows to best advantage when planted above the ground level, that is in the face of a rockwork, near the top of a bank or some such place where the drainage is perfect; at the same time give it deeply worked good soil.

As a rule the stems of raspberry and blackberry bushes are biennial, that is they grow up this year, and fruit and die the next season. But this isn't the case with this Rocky Mountain shrub, its stems are hard-wooded and persistent, at the same time we have to cut out a good deal of dead wood from it every year.

While this is one of the handsomest shrubs grown it isn't one that we would recommend for planting in a small garden as we would the best deutzias, spiræas, or snowballs.

TREES AND SHRUBS IN BLOOM AT ROCHESTER, N. Y., JULY 8.

The most showy flowering plants with us just now are the yucca (*Y. filamentosa*). A mass of a hundred plants with three to five spikes on each attract much admiration.

Many of the late blooming spiræas are in flower. *S. Bumalda* and Billard's willow-leaved are still in good bloom, and *Japonica* (*callosa*) and its varieties *alba*, *superba*, *rubra*, and *semperflorens*, and *S. Douglasii* and its variety *pachystachys* are at their best. *S. sorbifolia* with showy white plume-like panicles and *S. Pallasii* much like the last were in full flower last week. *S. virescens* with whitish pink cymes, *Blumei* with large pink panicles and *Nobleana* with rose colored flowers are in bloom and desirable forms. *S. discolor* (*serratula*) has nodding panicles of white fleecy flowers and is the most beautiful of the late blooming kinds. We find it more difficult to grow than most of the other spiræas. The best specimen of it we have seen in this city is where it is shaded at noonday by a close-by oak.

The American basswood was in full flower the first of last week. The common catalpa (*bignonoides*) is now in fine bloom.

Halls honeysuckle is still in excellent bloom. The different varieties of bush honeysuckles as *bella*, *Ruprechtiana* and *Morrowii* are loaded with red and yellow fruit. The Japan tree lilac (*Syringa Japonica*) has been handsomely in bloom but its panicles were spoiled by rose bugs. The flowers of the oak-leaved hydrangea (*H. quercifolia*) are beginning to open and so are the spikes of the dwarf horse chestnut (*Æsculus macrostachya*). *Hypericum ramosissimum* has been in bloom for the past week, and *H. hircinum* since a few days. *H. Kalmianum* and *aureum* are coming into flower.

The Californian sweet shrub (*Calycanthus occidentalis*), very closely protected last winter, came into flower on the 2nd in t.; the blooms are dull red, about three inches across, and scentless. It has never before flowered with us.

The alternate leaved dog wood (*Cornus*) will soon look pretty loaded with its blue fruit. The white fruit of the red osier dogwood is now ripe, and the alpine daphne is covered with its red berries. The American and Spanish chestnuts have been in bloom for the past ten days, and are now pretty well past. A few scattering blooms are to be seen on *Rhodotypos kerrioides*. The prairie rose (*Rosa setigera*) is very lovely, and the Japanese trailing one (*R. Wichuraiana*) with its small lustrous dark green leaves, and profusely borne white flowers is at its best. It is a gem amongst single roses. The common swamp rose (*R. Carolina*) is in bloom, and a few odd blooms are to be found on *R. rugosa*. J. DUNBAR.

LILACS, OTHER SHRUBS AND PERENNIALS.

A correspondent asks: "What shrubs and hardy herbaceous plants will harmonize well with lilacs and thr ve when grouped with them?"

For grouping with lilacs select plants having a vigorous constitution powerful developm nt of roots, and a somewhat similar habit of growth, color and texture of foliage as the lilac, such as the forsythias, Japan quince, *Rosa rugosa*, *Myrica cerifera*, *Spiræa Van Houttei*, *rhodotypos*, pæonia, *Clematis recta*; fraxinella, *Funkia ovata*, and *lanceolata*, *Cassia Marilandica*, helianthus, *Lychnis chalcedonica*, *Monarda didyma*, *Spiræa Aruncus*, *Veronica spicata*.

WARREN H. MANNING.

Brookline, Mass.

NANTHOCERAS SORBIFOLIA.—W. C. E. writes: "I have bought two plants at different times, but did not succeed in even getting it started. Next fall when a strong west wind is blowing can't you shake some seeds this way?" [With pleasure.—ED.]

HE RAISED IT.—George Donald writes: "From the Nanthoceras seeds you sent me a couple of months ago I have succeeded in getting up three plants; they are now potted off singly. No doubt, though, it is a hard seed to make grow."

GEORGE DONALD.

GARDENING has come to my home since the first number and I look for it as much as I do for my flowers in spring.

Akron, Ohio, June 22, '95. L. A. L.

Roses.

QUESTIONS ABOUT ROSES.

MILDEW, BLACK SPOT, COLD WATER, CLUB ROOT—EEL WORMS.

Mr. W. Fitzwilliam, Orange, N. J., writes: "Some friends of mine, readers of GARDENING, have rose houses situated in a depression known as Orange Valley. They have been very badly troubled by mildew on their roses in general, and with black spot on their American Beauties. We on the hillside are not so troubled. 1. Has the location anything to do with it?"

Ans. Yes, materially so. In a low, damp location more care will be needed in looking after the ventilation, which is the principal cause of both mildew and black spot. The best preventive of mildew is proper ventilation, presuming that the houses are run at an average temperature of 56° at night, as soon as the thermometer indicates 62° in the morning begin to raise the ventilators and continue to raise them gradually as the temperature increases till an abundance of air is circulating all through the greenhouse; then as soon as the sun begins to lose its power a little, gradually reduce the air till the ventilators are quite closed at a reasonable time in the afternoon. This keeps the plants in a healthy, sturdy condition with thick, leathery leaves, resisting mildew. The surest way to get plants affected with mildew is to let the temperature run up to 70° or more, then put on a lot of air at once to reduce it. Water, again, is another factor in the matter of mildew. If the plants are saturated at the roots and then run at a high temperature they will produce soft wood and foliage susceptible to mildew. The sovereign remedy for these troubles is plain, practical, common sense. The same care which a man should take of himself to guard against taking cold, will prevent mildew on plants. Black spot, also a fungoid disease, is not as easily combatted or prevented as mildew, yet a free circulation of air, combined with all other conditions favorable for the best development of the plant will do much to prevent it. One of the most prolific causes of this disease is a close, damp atmosphere, particularly when the plants are a little too wet at the roots, under such conditions black spot can be produced on the most healthy house of Beauties; letting the plants get a check in any way, particularly in allowing them to get over dry and then giving them an extra heavy watering, will injure the young shoots, and their tops are sure to suffer in proportion, and black spot to follow. The grower must watch carefully requirements of his own particular soil and adopt a treatment accordingly, likewise in regard to ventilation.

2. "They use the West Orange city water, which is very cold in winter. We use cistern water. Is the cold water injurious in winter?"

Ans. Yes, roses are usually grown in a greenhouse with a minimum temperature of 56° at night and a maximum of from 75° to 85° during bright days. Now the average mean temperature would probably be about 66° to 68°. To take a man living in such a temperature and plunge him into a bath at say 45° to 48° would likely give him a severe cold or rheumatism, if it did nothing worse. The same conditions hold good for plants.

3. "One of the growers has been troubled with club root on his roses. We use a considerable amount of soot in our compost for roses, also give an occasional topdressing of wood ashes; we are not troubled with club root. Are these the possible causes of our immunity from it?"

Ans. Yes, materially so. The best preventive is clean, healthy plants to start with. Then select the soil and add a liberal dressing of soot to it when mixing. Never allow the plants to get a check but keep them growing on steadily, and after they are well established give them an occasional light dressing of wood ashes, or a watering with lime water if the ashes are not available, only do not overdo it to injure the roots. This pest (the eel worm) is on the increase all over the country, and when once the plants get infested with it there is but little hope for them. Some varieties suffer more than others, and as this pest is very minute one cannot tell whether it is in the soil unless he examines the natural plants growing it in the field. By examining the clover roots growing in the open field the little club nodules if present can be found readily, and where such is the case you can rest assured that roses grown and forced in that soil will be sure to be affected by club root. The only absolute remedy is to subject every particle of the compost to a very high temperature, say 240°, by steam, but this is out of the question with many. JOHN N. MAY.

Summit, N. J

MY ROSES.

Two plants of the very desirable Japanese *Rosa multiflora* var. *Japonica* were brought to me during the winter of 1887 from London. In October 1888 it was transplanted to its present position in Cambridge, Mass., near the Harvard Botanical Garden. After noting its habit a trellis was made of strong galvanized wire netting three feet wide and supported top and bottom by heavy wrought iron rods so arranged as to set out about eight inches from the back porch, masking the door from the street, and with a southwest exposure. The natural soil is sandy and thin with a pure sand subsoil eighteen feet or more deep. Before planting the rose the old soil was removed to a depth of four or five feet and replaced by a load of rich loam with the old top soil worked in. Every fall it is dressed with a few shovelfuls of cow manure after the ground is first frozen; this dressing is raked off in the spring, the coarse litter separated and the fine returned to the bed after working in with a small hand fork a handful of bone meal. The bush has never been pruned except to cut out the doorway and trim the heps off every spring, which persist over the winter. It was in finest bloom last year, June 14, and in the afternoon a large swarm of bees was hived off from the fence near by, only a few feet away from the rose. This year (1895) it was at its best June 12, and was even finer than it was last year, as a strong shoot was trained last summer high up over the doorway, meeting Hall's honeysuckle trained up the corner post. The flowers are of a brilliant white, and with the bright gold stamens are a handsome sight. It lasts in good form for a week, filling the air with perfume and attracting swarms of bees that must come four or five miles, as this part of Cambridge is now thickly settled.

Having a sandy soil I am liberal with water, using the hose frequently through the summer and early fall. All of my Japanese plants suffered severely the past winter except this rose, the Japan snowball only ten feet away being badly cut down, the honeysuckle was also much damaged.

Near this rose are the hybrids John Hopper and Paul Neyron that have always thriven. In the back-yard garden we have all the familiar hybrid perpetuals such as Capt. Christy, Magna Charta, Jacqueminot, Baroness Rothschild, Mabel Morrison, and many others, besides Mme. Plantier, the Dawson rose and Gloire Lyonnaise (which I always protect with straw), and all are pruned back in April. All of these were killed back last winter to eight or ten inches from the ground, but as I cut back quite severely no damage has resulted, in fact our roses are larger and finer than ever.

I spray, first with whale oil soap before the leaf buds break, after that I use Hammond's slug shot. The rose bug comes but rarely gets beyond Madame Plantier, which acts as a protector. These bugs are gathered night and morning and crushed between thumb and finger, as dropping them in kerosene takes too much time. [Than dropping them into kerosene nothing can be much simpler or easier; in fact it is the method employed in commercial nurseries where acres of cherry trees in particular are picked to save them from being almost defoliated by the pests.—ED.] The only pest on the *Rosa multiflora* is greenfly, which is taken care of by the slug shot and a strong hosing, using full pressure of the water.

I have just received second hand from Kew two small plants of *Rosa grandiflora*, do you know it? It is said to be a very old favorite lost to cultivation and now re-discovered. Mine have few flowers, and it is a good thing, but I was sick when it blossomed and did not have the chance to study it. T. N. C.

Cambridge, Mass.

[Yes, *Rosa grandiflora* is grown at Dosoris. See GARDENING, page 293. Among single roses it is a gem, so full of large, perfect blossoms, and the plant is very hardy. It is generally looked upon as a form of the Scotch rose (*Rosa spinosissima*) and its proper name is *Rosa spinosissima Altaica*. The London *Gardeners' Chronicle* of June 8 referring to it says: "Although described by Lindley as a species, under the name of *Rosa grandiflora*, and still frequently grown in gardens under that name, this rose is now looked upon by botanists as a variety merely of the Scotch rose, *Rosa spinosissima*. * * There is a group of plants in the Arboretum at Kew covering several yards, all of which are now thickly crowded with flowers, and make a most charming picture. * * It is a native of the Altai Mountains and was introduced in 1818.'—ED.]

NOTES ON THE CULTURE OF ROSES.

1. WINTER PROTECTION.—Just before winter sets in—with us the last week of November is usually safe—and when the ground is not at all frozen, I shorten the new growth of the tenderer and less vigorous varieties to about twelve inches, and the others less in proportion as they are more hardy and free growing. Next I make a mound about each plant some five or six inches in height, the material for which is well rotted compost, two-thirds of which is sod. Lastly I place about this mound, and so far as practical over and among the shortened canes a covering of sods either quite fresh or lifted so recently that they do not break easily. The compost that forms the mound is dug in the following spring, and serves a good purpose as fertilizing

material. The sod is removed in April, usually a week or ten days before the mounds are leveled, and is made the basis for a new compost. For the less hardy roses I believe that sod and earth are better than earth alone, because the sod is a much better non-conductor than earth alone and therefore keeps the temperature of the sensitive portions of the plant, namely the buds and the inner bark, more even, or to put it in another way, it makes the changes in temperature more gradual and lessens their range. I do not think it well at this season to dig deeply about the plants. After the mounds are made the bed should be given a good-dressing of well rotted or at least half rotted cow manure, and this should be dug in just enough to leave a roughened surface.

PRUNING.—Very little is needed by the varieties which are most hardy and vigorous. What I do with these is for the purpose of making the plants well balanced and shapely. The others, however, require considerable careful attention. My rules are the following: (1) in the spring pruning never leave any wood except where the bark has every sign of perfect health; (2) in summer pruning stop each vigorous growing shoot at a height varying (according to the variety) from fifteen to fifty inches; try to have several canes from each plant of nearly equal height and vigor, instead of a single overgrown one surrounded by a few starvelings.

FERTILIZATION.—The aim should be to furnish enough at the right time and in the right form. As to the amount my experience agrees with that of many others that when the plants are most active it is difficult to give them more food than they can use. But it is at this very time that the feeding roots should not be disturbed; hence the great importance of applying the heaviest dressing in the fall when the plants are nearly dormant. A lighter dressing may and indeed, should be given just after the June bloom. During the five weeks between the first appearance of the buds and the cutting of the last June and early July blooms frequent but moderate applications of liquid fertilizer are useful. Thus far my experience has been confined to well rotted cow manure thoroughly incorporated with the soil, and to liquid fertilizer made from cow manure. I think, however, that the rotted sod applied in the spring is a fertilizing element of considerable value, especially for some of the finer and more capricious varieties. Of the best method of fertilizing ground in which roses are about to be planted I will write in a subsequent note. ASSON D. MORSE.

Amherst, Mass.

BOSTON ROSES.

Of course we of Boston believe that the finest roses on the Atlantic seaboard are grown in New England, Cape Cod probably producing the best. Why, the H. P. roses grown there and at Newport and in Rhode Island have an English finish to them, they are so large and full, and have such fine substance and clear bright color, indicative of the benefits of the moist, cool sea air. And the glory of these productions is spread before our admiring eyes every year at the rose exhibition of the Massachusetts Hort. Society in Boston. That exhibition was held in June, and the flowers were grand.

The best three roses shown were:

Earl of Dufferin, brilliant velvety-crimson.

Mlle. S. de Rodocanachi, rose shading to white.

Margaret Dickson, white, pale flesh center.

Next to them the following are the best twenty-four roses in the exhibition.

Abel Carriere, velvety crimson.
Alphonse Soupert, bright rose.
Baron de Ponstetten, velvety maroon.
Duchess of Fife, silvery rose.
Duke of Teck, bright crimson.
Elizabeth Vigneron, bright pink.
Fisher Holmes, bright crimson.
Jeannie Dickson, rosy pink.
Magna Charta, pink.
Marie Baumann, crimson-vermilion.
Madame Eugene Verdier, mottled rose.
Madame Prosper Laugier, red.
Marchioness of Dufferin, cherry rose.
Merveille de Lyon, white shaded with rose.
Mons. E. Y. Teas, carmine-crimson.
Mrs. Paul, blush white shaded with peach.
Perfection des Blanches, white.
Pride of Waltham, flesh color, shaded with rose.
Queen of Queens, pink with blush edges.
Senateur Vaisse, red shaded with carmine-crimson.
Souvenir de Wm. Wood, dark crimson.
Thomas Mills, rosy crimson.
Ulrich Brunner, cherry red.
Victor Hugo, brilliant velvety crimson.
Cliftondale, Mass. DAVID ALLAN.

LA FRANCE ROSES.

A. D. M., Department of History, Amherst, Mass., asks: "Please give directions how to raise the finest La France roses both under glass and out of doors."

This requires a compost of fresh sod loam (from an old pasture is the best) with the addition of one part to five or six of thoroughly decomposed cow manure, all well incorporated. Put this on benches in the greenhouse about four inches deep, then plant good strong thrifty plants about 15 inches apart each way. Water liberally in dry hot weather and give all the air possible till cold weather comes, then treat reasonably and never let the night temperature exceed 56° and you can get La France fit for a king to look at. For open air culture deep cultivation with plenty of manure and liberal waterings in dry weather will produce the desired effect. JOHN N. MAY.

CRIMSON RAMBLER ROSE.

At Lincoln Park, Chicago, there are four plants of Crimson Rambler that have been in their present position near the stone bridge that crosses the neck of water connecting the two large ponds of hardy water lilies since the spring of '94. They behaved so badly last summer, particularly in the matter of mildew, that Mr. Stromback decided that they would be of no use to him. So he left them to their own devices, and when winter came they were given no comforts save those provided by nature—which included an unusual amount of snow. The result is that all of the plants wintered perfectly and have grown and flowered most satisfactorily. In fact they have done so admirably in every way that Mr. Stromback is tireless in his praise of the beautiful little rose. As shown by these plants the color is good, even old flowers showing no purplish cast although losing some of their depth of color. It keeps well when cut, freshening up nicely even after being long carried, and it opens its undeveloped buds (though the flowers are somewhat smaller than when opening on the plant), when kept in water.

F. C. SEAVEY

MARECHAL NIEL ROSE.—I have a Marechal Niel rose budded on the Cherokee, and growing in a large tub, that is doing well with me. It had forty fine roses on it this spring and was a beauty; later it has had three or four more on new wood. We keep it in a cool flower pit over winter and set it out of doors during summer. E. O. N.

Tracy City, Tenn.

Orchids.

ORCHID NOTES.

DENDROBIUM NOBILE is now making its growth and should be encouraged by plenty of sunlight and water, copious syringings overhead and a moist atmosphere. Make the most of the growing season. Remove the offsets from the stems unless they are close to the base of the plants. If the old stems are sound and plump leave them, as they will help the plant; but cut away all shrivelled ones, and induce the plant to make growths from its base. When a plant ceases to make new growths from the base the only remedy is to cut down and pot the offsets, with a piece of the old pseudo-bulb attached for a "handle" so as not to bury the bright fresh young roots; these offsets will make young plants much better than the parents. Don't depend on scraggy old plants of this orchid. Unlike *Dendrobium Wardianum*, this orchid does not flower best from the current year's growth; it can be done, but it will be at the expense of shriveling the plant by excessive ripening, and produce inferior flowers. When the plants finish their growth ripen them by full exposure to the sun, gradually withhold water and keep them cool, but do not keep them below 45° or they will be sure to get black spot. The same general treatment applies to all dendrobiums now making their growth, such as *D. Wardianum*, *D. fimbriatum*, *D. formosum giganteum*, *D. aureum*, etc. The house must now be kept very moist, for this is the "building up" time, but while aridity is the bane of orchids the opposite extreme, a heavy, foul, stagnant atmosphere, must be guarded against. This is often likely to occur during cold rainy spells in the shaded houses. The remedy is to light a little fire so as to heat the pipes sufficiently to start the air in motion, ventilating at the same time.

CATTLEYA LABIATA has now finished its growth and consequently requires less moisture and shade till it shows signs of flowering. *C. Bowringiana* is now in active growth and will flower before *C. labiata*. All the cattleyas which are now growing, such as *C. Trianæ*, *C. Percivaliana*, etc., must now receive their maximum amount of heat and moisture.

Orchids in bloom on this place at present (June 23) are: *Cattleya Gaskelliana*, *Harrisoniæ violacea*, *gigas superba* and *Leopoldii guttata*; *Cypripedium barbatum*, *Lawrenceanum* and *Chamberlainianum*; *Sobralia macrantha* and *Oncidium ampliatum majus*. Coming into bloom are *Cattleya Dowiana*, *Sobralia leucoxantha* and *S. Ruckerii* and *Cypripedium Parishii* and *Roezlii*.

WM. FITZWILLIAM.

Baronald, Orange, N. J.

I AM SO interested in flowers and have read with much pleasure and profit your valuable GARDENING. E. C.

Petersburg, Va., June 20, '95.

GARDENING

WILLIAM FALCONER, Editor.

PUBLISHED THE 1ST AND 15TH OF EACH MONTH
— BY —
THE GARDENING COMPANY,
Monon Building, CHICAGO.

Subscription Price, $2 00 a Year. 24 Numbers. Advertising rates on application.

Entered at Chicago postoffice as second-class matter.

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All communications relating to subscriptions, advertisements and other business matters should be addressed to The Gardening Company, Monon Building, Chicago, and all matters pertaining to the editorial department of the paper should be addressed to the Editor of GARDENING, Glen Cove, N. Y.

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KOELREUTERIA PANICULATA.—We wish our readers could see a specimen of this yellow-flowered Chinese tree now in bloom at Dosoris. It is magnificent beyond description, and certainly the finest thing in the way of a yellow-flowering tree of any kind that we have ever seen. An illustration of it was given in GARDENING July 15, '94, but the tree is finer now than it was then, or ever before. It is a small-sized tree, plentiful in nurseries, cheap, hardy, and of the easiest cultivation. As seen in gardens it is generally crowded into a shrubbery or among other trees, and is misshapen or enervated by starvation. The specimen now referred to stands alone on the lawn, and it is a handsome tree as well as a glorious floral feature.

BIG FLOWERS.—The pears of California are remarkable for their size, and so are the apples of Kansas, but both pale before the wild flowers of Wisconsin. In the July *Mayflower* a correspondent in telling about the wild flowers of Wisconsin writes: "Of trilliums we have three varieties, *T. grandiflorum*, with flowers eight inches across." My, my!

HYBRID POPPIES—THERE IS NO SUCH A THING.—Such is the opinion of W. Wilks of England given in a recent *Gardeners' Chronicle*. Than Mr. Wilks no man knows poppies better, he having made a special study of them practically for about twenty years.

IF THE FIRE BLIGHT has attacked your pear trees don't let the blackened limbs stand there before you all summer propagating the spores of disease for further dissemination, but cut out all diseased parts back into healthy wood, and burn what is cut out.

CANTERBURY BELLS.—It is time these were sown for next summer's flowers. The calycanthema varieties are preferred.

LILIUM HARRISII that was forced in the winter of '93-'94, and planted outside last summer, was left in the ground over winter, and slightly mulched, and is now in fine bloom.

LILIUM CANADENSE is now in bloom in the meadows, and *L. superbum* will soon be in the swamps and other places. After they come into bloom, and you needn't wait till they ripen up, you can cut down the stems, dig up the bulbs, and transfer them to your garden. Even if the bulbs are a foot deep in the woods and meadows don't you plant them as deep as that in your garden if you ever hope to see them again. Plant them in deeply worked ground, and 3 to 5 inches deep, according to their size, and mulch the ground in winter.

LETTUCES IN SUMMER.—There is no lettuce grown that won't run to flower in hot dry weather in summer, but some varieties run soon that they are worthless for summer use. Our best lettuces now (July 10) are Thorburn's Market Gardener's Private Stock—after the style of Salamander, Yellow-seeded Butter, Perfect Gem, and Deacon. The last named is included because of its good form, tendency to head, and slowness to "bolt", and not for its fine quality, for really it isn't firstrate in that direction. The first named matures a little earlier than the others, but all are fit for use inside of eight weeks from the time of sowing the seed.

THE O'MARA WATER LILY.—A year or two ago Mr. Peter Bissett of Washington raised a new hybrid tropical nymphæa and named it in compliment to Mr. P. O'Mara of New York. It has a fine, sturdy constitution, and produces large, showy, red flowers with the greatest freedom. Mr. John McElvery of Flatbush, who has had it in constant bloom for nearly a year, and with whom we saw it in fine form last winter, regards it as one of the best nymphæas extant.

SHRUBS THAT BEAR second crops of flowers are quite desirable. Among these are American and Chinese wistarias, but not the Japanese; rose acacias, magnolia *cordata*, *Lenne* and *parviflora*, rugosa and many other roses.

THE OAK TREES have started to grow again; the warm dry weather of May and June, succeeded by the copious rains, recently have promoted quite a vigorous second growth. But don't fear for your young oaks, this second growth will ripen up perfectly before winter, indeed, should a third growth start there is no need of being alarmed, for our oaks are very hardy.

THE SINGLE-FLOWERED PRAIRIE ROSE (*Rosa setigera*). If you haven't got it this fall, and plant it in good ground, and next spring tie it up to a stout stake. Now that the June roses are all past, and the double-flowered prairie roses are done this wildling is in full beauty. A year or two ago General J. B. Pearsall of this village, at our suggestion got a couple of plants, and he planted them in his garden in good ground near the street. To-day (July 10) they are perfectly lovely and the admiration of every one who passes by.

GREENHOUSE PLANTS PLANTED OUT.—If the carnations are running to bloom cut them down, you want stocky plants. Strip off the runners from the violets, and confine the strength of the plant to one crown. If they are diseased the spots will appear this month or next, pick off and remove every leaf having round white spots on it. Shorten back the young shoots of bouvardias. Pinch the solanums (Jerusalem cherry) into shape. By keeping them clean and well hoed encouraged growth in the libonias. It is quite safe yet to pinch in chrysanthemums as much as desired, but better stop it after this month.

CINERARIAS AND CALCEOLARIAS.—It is time to sow these now. Sow them in pots, pans, or flats, well drained, and filled with light soil, and keep them in a cool window cold frame or greenhouse; away from draughts, and shaded from sunshine. Don't let them get dry, but avoid drenching them. A later sowing may be put in in August or early September. A pane of glass laid over the pot but tilted up on one side ¼-inch will greatly help to preserve the moisture in the soil, paint one side of the glass with clear linseed oil to dull it. The seed is so fine it should be covered only very little.

I ENCLOSE check for $2 for renewal of my subscription to GARDENING, which I find indispensable. Since my first brief glimpse of a few copies of the journal in the home of a friend, and which led to my immediately becoming a subscriber, I have seen no cause to change my original enthusiastic estimate of the paper. It is very readable, practical and "up to date" in all respects. W. HAMILTON GIBSON.

Washington, Conn., June 22, '95.

The above comes to us from the publisher with the following note: This is the distinguished artist and illustrator who does a lot of work for *Harper's Magazine*. Doubtless you have read his articles on wild flowers and insects, illustrated with a feeling equal to Alfred Parsons. His praise is certainly a very high compliment.

WHAT CAN WE RAISE from seed now to replenish our gardens later on as the summer plants die out? is a question that may concern some of our readers. Now we haven't many, for it often happens that seeds sown now remain dormant in the soil till after the ground gets a good soaking rain, and then the young plants plump up to keep over winter for spring blooming rather than exert themselves to bloom this year. Some hours before sowing the seed soak the ground well, and after sowing, shade it till the seeds germinate. Sow Lobb's and dwarf nasturtiums, balsams, pot and French mari-

golds, dwarf sunflowers, morning glories, mignonette, sweet alyssum, Drummond's coreopsis, candytuft, China asters (they can be lifted and potted it too late for outside), petunias, p rtulacca, and eschscholtzia and *Nicotiana affinis*. The last two like mignonette, sweet alyssum, and pot marigolds are seldom not injured by frost before November.

PROPAGATING PERENNIALS BY DIVISION.—This is no doubt the better way when it comes to spreading plants such as helianthus and monarda, and easily divided crowns as funkia and phlox, but wherever the species or variety is easily raised true to kind from seed, from seed is generally the best way to do it. A correspondent asks us about propagating foxgloves by division. Of course it can be done, but it's a very long road to get quick home. No, no, raise them from seed, and raise a fresh batch every year. And the same with delphiniums, hollyhocks, tuberous begonias, pansies, and many others.

SAVE SOME SEED.—Before your perennial larkspurs (*delphiniums*), hollyhocks, poppies, snapdragons, sweet williams, etc. are out of bloom mark some of the finest of them and save them for seed. They all come fairly true from seed. Of course, we all know that we get the best germination, when we let the seed drop from the plant on to the ground about it, but it isn't always convenient for us to do this, hence we find it well to pick the seed and sow it elsewhere.

MAGNOLIA GRANDIFLORA ON LONG ISLAND.—Every summer, several years ago, the late Mr. S L. M. Barlow used to bring us some of these magnolia blossoms cut from a tree on his beautiful place, Elsinore, a few miles from here. He had an old plant—30 years old, he thought—in a tub in his conservatory; then he planted it out of doors in a sheltered place, and it lived over winter nicely and blossomed every summer. In severe winters, however, it was as completely defoliated as a deciduous tree. But now we have them blooming nicely at Dosoris. We used to tie them up and set barrels—bottomless ones and one above the other—over them in winter. Last winter, however, we left one plant absolutely unprotected except that it was in a well sheltered warm spot of the grounds; its leaves got browned, most of them fell off, and it looked rather seedy in the spring. But now it has completely recovered, taken on new leaves, and every tip or lateral of a branch has a blossom or bud, and the flowers when flat open are twelve and thirteen inches across.

FLOWERS WE ARE NOW CUTTING (July 10).—Sweet peas, mignonette, Drummond phlox, annual coreopsis—*tinctoria*, *coronata* and *Drummondii*, perennial gaillardias, perennial and annual larkspur, Kæmpfer's irises, snapdragon, hollyhocks, early planted gladioli, double white feverfew, salpiglossis, large and frilled petunias, China pinks, early propagated Portia carnations, ten-week stocks, annual poppies, spring sown cornflower, spring sown pansies, platycodon, achillea Pearl, double scarlet *Lychnis Chalcedonica*, annual candytuft, verbenas, some varieties of clematis, Lobb's and annual nasturtiums, panicled gypsophila, creeping milkweek (*Euphorbia corollata*), orange butterfly weed (*Asclepias tuberosa*), rose colored yarrow, cucumber-leaved dwarf sunflower, Sutton's nemesia, Torrey's pentstemon, some perennial phloxes and heliotrope, Madagascar vines, Cape plumbago, scarlet geraniums, and many other odds and ends. Besides these the yuccas are in their heyday, but many people don't like the smell of them. Japan, discolor and Lindley's spiræas if stripped of their large leaves are fine for cut flowers. And in the same way we may use the trumpet creeper. But it is a fact that generally the blossoms of trees and shrubs cut with long hard wooded stems wilt quickly. From the greenhouse come gloxinias, allamanda, anthuriums, and the like.

The Greenhouse.

OUR GREENHOUSE.

We have three greenhouses, one devoted to grape vines, one to r ses and the third to miscellaneous greenhouse plants. It is with this last named structure—that devoted to winter blooming and fine leaved plants—that we will now deal.

It is 65 feet long, 18 feet wide, span-roofed and glazed with double thick glass in 10x14 inch lights. The glass is bedded in putty but painted on the upper edge. It is heated by three runs of 4 inch hot water pipes running around inside of it. On each side there is a plant bench 3½ feet wide, then a 3 foot wide pathway, and a 5 foot wide bench in the middle.

One of the side benches we fill with carnations, planting them out on it in a bed of soil four inches deep. The plants are in rows 9 inches apart each way.

On the other side bench we grow an assortment of flowering plants as bouvardias, etc., keeping them in pots. We plant out our bouvardias in the garden over summer and lift and pot them about the middle of September. Heliotrope we plant out on the bench, as we get twice as many flowers from it when treated in this way as when grown in pots. And because we can get far more growth on our rose geraniums when they are planted on the benches than when in pots we plant them out also.

We grow poinsettias in pots all the time, keeping them below the benches and dry after they have done blooming till May, when we shake them out of their old soil and repot them and then plunge them out of doors in summer. We turn the pots around every week or two in summer to break any roots that may emerge from the bottom of the pots. Take them indoors early in the fall, and when they begin to show signs of flower feed them with cow manure liquid to enable them to make larger flower heads. We also grow a good many begonias for cut flowers, especially *B. insignis*. And we find room for a bed of smilax.

On the center bench we find room for the larger plants as *Begonia rubra*, palms, screw pines, hibiscus, etc. In the summer time these plants, being nice specimens, are set in and around the dwelling house for ornamental effect.

Early in the fall we take cuttings of our GERANIUMS, putting them into flats filled firmly with sharp sand and let them stay there till they are well rooted, then we pot them singly into 2½-inch pots, and set them close together on the bench. When they begin to get crowded we pinch back any that are getting too tall. Keep them down if possible. In early spring repot them into 3½-inch pots and set them farther apart either in the greenhouse or a warm frame, and you can have nice stocky plants for planting out in spring.

CHRYSANTHEMUMS.—We are growing a lot of them in pots now in the greenhouse, where we can give them lots of room, and by having them under complete control can feed and hose them as we please, and in this way have them hearty and clean, sure forerunners of fine blossoms. We also have lots of chrysanthemums planted out of doors in summer for lifting and potting or transplanting later on.

BULBS FOR WINTER.—In fall we get about six hundred bulbs of hyacinths, two hundred of tulips and four hundred of narcissi. These may be planted in pots or flats. I then dig a trench for them out of doors, about a foot deep, and store the pots and boxes in it close together, cover them all over with about three inches deep of sand, then with a ridge of forest tree leaves. This allows me to get at them easily in winter any time I want to, to bring in a few at a time for a succession.

GEORGE DONALD.

Fairfield, Conn., June 21, '95.

NITRATE OF SODA FOR PALMS.

H. C. G., Dayton, O., writes: "I am informed that nitrate of soda in a weak solution is a good fertilizer for palms, is this so?"

Yes, it is excellent, but the solution must be *weak*. When used broadcast on land a hundred pounds at a time to the acre is a fair dressing; better still if we repeat this dressing twice or three times a season with intervals of a few weeks between them. At this rate a pinch—about as much as an old Scotchman would take of snuff at a time to a 2 gallon can of water will be enough. And only when the plants are starting to grow or in active growth would we care to use it, then, however, you can repeat it every eight or ten days.

CYANOPHYLLUM MAGNIFICUM.—T. G. B., Ridgewood, N. J., writes: "I have three of these, but as the leaves drop very much at times I don't think I give them proper treatment. Please tell me about them."

It is a magnificent large-leaved tropical plant of easy cultivation under proper conditions. One to two year old plants are handsomer than older ones, and they should be confined to a single stem. This plant likes heat, shade and moisture. Use a free, fibrous soil with some leaf mould and fine broken charcoal mixed with it and clean well drained pots. Syringe the plants daily overhead, don't let them get dry at the root, and keep them away from draughts.

The Fruit Garden.

THE FRUIT GARDEN.

Strawberries are past, but currants, elæagnus, raspberries and black caps are in season; early apples and pears are ripening, and the fruit garden is now a very interesting part of the home grounds.

PEARS.—Never before have we known pear tree fire-blight to be as bad as it is this year. Mr. Fowler at Port Jervis writes us that it is the same in his neighborhood. Prof. Meehan of Philadelphia says it was worse there last year. We cut out all the diseased limbs or branchlets below where they show the disease, and burn them. Pears with us will not be a heavy crop. Doyenne d'Ete will soon be ripe, then will follow Osband's Summer, Giffard and others. If we want fine pears, we should be very particular to thin the fruit, removing all deformed and wormy ones, and the poorest among the rest. While standard trees are all right, a little

regulating of the shoots of the dwarfs is better done now than in winter.

APPLES.—Look out for caterpillars. It is a disgrace to the owner of a garden to have branches of his apple trees here and there brown or defoliated with broods of caterpillars. Brush off or burn the webs as soon as noticed, or cut out the branch and tread upon the worms. From this on lots of wormy and deformed fruit will fall from the trees, and allow the worms to escape into the ground to pupate, to continue the supply of vermin. Rake up and remove all such fruit to the burn pile. It is too green to tempt the pigs.

PEACHES.—Prop up overladen branches in time, else a wind and rain storm may come along and break them. Regulate the growth of the young trees by a little timely shortening

PLUMS.—Every few days rake up the rotten and stung ones that fall to the ground, and throw them on the burn pile.

MADEIRA NUTS OR ENGLISH WALNUTS (*Juglans regia*) are perfectly hardy and grow well, and bear abundantly at Dosoris. During the first fortnight or three weeks of July the young nuts, just before the stone sets, are in fine condition for pickling. Walnut pickles, although much used in Europe, are not often "put up" here, more's the pity, for they are a capital relish. At this time of year walnut trees are apt to b come infested with caterpillars; look out for them, and strip them off and destroy them. Aside from their unsightliness, they speak ill for the interest the owner takes in his garden.

GRAPE VINES.—If you haven't bagged any of your grapes, get a lot of one-pound and two-pound manilla paper bags, such as grocerymen use for sugar, etc., and put a bunch into each bag; fasten the bag with a pin. This is a partial saving of the grapes from mildew and rot, and a complete one from birds and sun-scald. Break off at a joint all the shoots that are running beyond bounds.

STRAWBERRIES being past, now is the time to lay the foundation for next year's crop. Plants set out last spring will bear next summer; those that were set out last fall bore a crop this summer, and if kept over for another year will bear a fine crop next summer, but all other beds should be cleared away, and the ground prepared for other crops. As old plantations don't make runners readily, but young ones do, spare not the old; the young ones will give you runners enough. We have cleared out the mulching from between the rows and unfastened the ground with a prong hoe so that the runners can root into it readily and make fine well rooted plants. The plants produce strings of runners having two or three plants on each, but it is well not only to cut out the weakest runners altogether, but to cut off the ends of the runners retained, leaving only one sprout to each runner. In this way we get fine plants early in the season. For home use there is no need to pot them; just as soon as the plants are well rooted lift them with a trowel, preserving a ball to each, and transplant them at once. But as there is no need of letting all the kept-over patch go to making runners to give plants for a fresh plantation, all rows not required for this purpose should be kept rigidly free from runners. Strawberry plants love good, rich ground inclined to being moist, and if set out early, in August or September, they will become well rooted before winter sets in, hence not be likely to be heaved by frost.

CURRANTS.—We like to make our red currant jelly as soon as the currants are ripe (the end of June or first of July here), the jelly is clearer and firmer, and needs less cooking. For jam, however, we have to wait a week longer till the raspberries get more plentiful, as we use both kinds together. But this doesn't take all of the currants; they last for a month, being used for dessert, stewing, etc. We also use white currants for jelly, and get a less acidulous preserve from them than from red currants, and the jelly is of a fine bright color too. In red currants, both with pickers and cooks, large size is a leading consideration, and it is the same for market. The local demand for fine currants, even in this country village, is so good that next to strawberries they are regarded as the most profitable garden crop our gardeners grow. We also grow and use a good many black currants; they are ripe about the middle of July. The berries are picked all of a size and singly, and the old calyx husk on the end and the stalk are removed. In making jam of them we use them alone. This dissolved in water makes a fine drink for sore throat or a cold. Mixed with raspberries they make a nice table preserve for those who like black currants. We also can them. These are used in winter for dessert, also for pies. In growing currants of all kinds we are very particular to mulch the ground under the bushes very well to save the fruit from the grit thrown up by rain.

GOOSEBERRIES.—With the same treatment as currants get the commoner varieties bear well here, but the finer European sorts refuse to be comforted with us. They begin to ripen after the middle of July, but we begin to use them in June from the time they are little more than half grown no matter how green and acidulous they may be. They are cooked enough to soften them, then pressed through a sieve to remove the seeds and skins; and the pulp thus secured is sweetened with sugar and firmed with gelatine, and shaped in a mould. It is served with soft custard or whipped cream. For jam ripe berries only are used, and the red ones are preferred. And we can them for pies in winter.

RASPBERRIES.—No sooner are the strawberries over than these become abundant. Caroline, yellow, and Cuthbert, red, are our stand-bys. Aside from using them as dessert we make jelly of them, also jam, and mix them with red currants for jam, and also can them. We had a wire-netting fence around our strawberry patch, with a gate and lock on it; as soon as the strawberries were done we removed the fence to the raspberry plantation, where it does duty in the same way, and when the raspberries are over we will remove it to the blackberry patch. It's wonderful what a protection that temporary wire-netting fence is. If the young canes are hanging down tack them up loosely to save them from getting trampled on or broken; if there are too many of them to a stool cut out the weakest ones, but don't cut those you intend to keep over. And as soon as the crop of fruit is all gathered cut out the old canes to give the young ones more air and room to ripen up in.

BLACKBERRIES ripen after raspberries, and are one of the richest and most desirable of berries. Look out for their young canes—they are so brittle at the neck. Stick them up or tie them up out of your way. Where they are over-numerous thin them out, and dig them out of the pathways or neighboring beds, for they have a tendency to wander considerably away from home.

THE MARSHALL STRAWBERRY as exhibited at the recent Rose and Strawberry Show of the Massachusetts Horticultural Society at Boston, headed the list in all the classes. It was a clear case of being ahead of all the others in size, beauty, flavor, and finish. DAVID ALLAN.

CHESTNUT TREES.

H. F., Foxburg, Pa., writes: "Please inform me of the best way to procure chestnut trees. If by graft state best root stock and age. I have a satisfactory old tree."

Chestnut trees are very easily raised from seed. The nuts should be sown in fall, or kept in moist sand or earth over winter and sown in spring. But if you wish to raise the finer varieties, do so by grafting cions of them on two year old seedling plants of the American chestnut. If you want, however, only a few plants you can buy them so cheaply from the nurserymen advertising in GARDENING and have a three or four years' start in the growth of the trees that it will hardly pay you to graft them for yourself.

The Vegetable Garden.

THE VEGETABLE GARDEN.

For a week or more we have had abundant rains and everything looks fresh and vigorous, and vegetables are of fine quality and in great abundance

GLOBE ARTICHOKES are in season. As soon as you cut off the best heads cut the stem back to the ground to induce the plant to throw up more.

JERUSALEM ARTICHOKES.—Wherever they are too thick pull up plants enough to make the patch thin enough. If very thick they don't tuber well.

ASPARAGUS.—Let it grow and keep it clean. Hand-pick the beetles, or spray them with kerosene emulsion or weak Paris green water, or when the plants are wet with dew dust them with Slug Shot or fresh air slacked lime

BROAD BEANS are in season. Now for beans and bacon. In cooking be sure you peel the beans. As it isn't a hot weather plant we needn't bother about successions.

SNAP BEANS.—If sown a little and often an uninterrupted succession is had from June till late October. At this time of year they are a seven weeks' crop, that is from date of sowing till time of picking; when the nights get cooler they may take eight weeks. We sow weekly till the end of August.

LIMA BEANS.—If they haven't caught hold tie them up to the poles. Stopping the vines doesn't make them bear any earlier.

BEETS.—About the end of this month put in a large sowing. If the weather is moist early in August we also sow some more lest the July sowing may get too large before November.

BRUSSELS SPROUTS should all be planted by this time. But south of New York don't hesitate to plant yet.

CABBAGE.—The wet weather has rushed young cabbage plants so fast that even our early June sowings are in danger of being too early for winter heads. Finish planting as soon as possible, and firm the ground well about the roots. Remember that Savoy cabbage is better than Flat Dutch or Drumhead for table use.

CAULIFLOWER.—Plant out for fall use. And sow seed of Snowball or Erfurt for late fall or to lift and heel into frames for heading in winter.

CARROTS.—Get in your main sowing for

LEAVES OF THE OAKS OF NEW ENGLAND [SEE PAGE 332]

winter carrots. If sown earlier the roots are too large and hard for table use; if later than July whether or no we get nice roots before winter depends on favorable weather and good culture.

CELERY.—As ground gets empty get it into readiness for celery and planted. Rich land, plenty room, attention and abundance of water are what this crop wants. We plant in rows in furrows sunk four or five inches deep, two rows in the furrows, which are about 4½ feet apart. The plants grow well, when it rains or when we water the plants in dry weather the furrow holds the water to the plants, and earthing or boarding up for blanching the celery is easier than when on-the-level planting is practiced. It is a fact, however, that market growers as a rule prefer planting thin celery in single rows, on the ground level. Another way and one by which land is economized is to mark out a bed of four or five rows about 10 or 12 inches apart as one would for a seed crop, and in this plant the celery seven to nine inches asunder in the row. When the celery begins to grow it will grow up straight, and if boards on edge are set around close by the outside rows they will help to hold up the plants, and growing together so thickly will blanch them all. But rich land and abundance of water are needed for this method. It is better fitted for early than for late crops. If your celery is still in the seed bed and you cannot plant it out permanently at once, prick it off two or three inches apart to make it stocky and get it to root well.

CORN.—The earliest corn is fit to use. We now put in a large sowing of corn for late, using Concord, Squantum, Country Gentleman, and a little of the early, like Ford's Early. We don't like sowing Stowell's after the 10th inst. North of here it may now be too late for sowing corn.

CUCUMBERS both for table and pickles may yet be sown.

EGG PLANTS are fruiting nicely. But we have to hand-pick them free from potato bugs. We shake the larvæ into a flat or basin and then destroy them.

ENDIVE takes longer than lettuces to mature, in fact it is a three months' crop. Now is the time to put in a large sowing of it. Transplant the seedlings as soon as they are big enough, treating them in fact as if they were lettuces.

KALE is a capital vegetable in early winter. If you sowed it when you did your winter cabbage get it planted out as soon as possible. If not yet sown sow at once. Even half grown plants are fine for winter use.

KOHL RABI.—Plant out as you would cabbage When the "bulbs" get two to three inches in diameter they are big enough to use. Sow again for a later succession.

LEEKS.—If not already transplanted draw a deep row as if you were going to sow beans in it and plant the leeks in it, three or four inches apart. Very big leeks are not desirable.

LETTUCES.—For a month now is the critical period. Wouldn't we like to see the lettuce that wouldn't "bolt" at this time of the year. We sow a little every 7 or 10 days and transplant the seedlings into the coolest and moistest ground we have for them; or better still sow the seed broadcast or in rows as one would turnips and thin out the plants enough to leave those retained far enough apart to mature.

MELONS are running in the hills and the rows will soon meet. Give the ground about them a thorough cleaning and a good deep hoeing, for in a week or two it may be so much covered with the melon plant that we cannot get at it very well to hoe it. Draw a rut under the leading vines, sink them into it and cover their joints over with earth to get them to root at the joints and in this way partly overcome the evil of the root borer (the larvæ of the striped cucumber beetle) which causes the vines to die off early in August just before the melons ripen. There are partial preventives if taken in time—that is from the time the plants appear till they are a foot high, but we are sick and tired of practicing reputed cures, they have amounted to nothing. Just now in our melon field are thousands of the Northern Lady-bird (*Epilachna borealis*), the black sheep in a most desirable family. It is a large, fat, voracious beetle of deep ochre yellow color with seven black spots on each wing and four on the thorax. It eats the leaves of melons, cucumbers and squashes, completely skeletonizing them, and when the leaves are gone it will eat the melons themselves. And a little later will appear its stubby, hairy larvæ, which also must be fed. We hand pick them into a pan of kerosene just as we do rose bugs. By spraying the plants with Paris green and thus poisoning their food we could kill them, but in careless hands there is apt to be as much damage done by the cure as by the disease if not more; besides, it isn't easy getting to the underside of the leaves with the insecticides, but the bugs get there and eat there as complacently as on the top.

MUSHROOMS.—Get ready for the coming

season. Have the inside of the house—walls, floor, etc., washed with clean water, then whitewashed with fresh slacked lime. Indeed before lime-washing it we ought to fumigate it with sulphur to kill every living animal and vegetable organism in it. Begin to gather fresh manure for the early beds. Plain horse manure well moistened under the horses' feet in the stable, and which has never fire-fanged is best. If dry moisten it well, put it under cover to save it from the drying effects of sun and wind, let it heat gently, but never allow a violent heat nor let it get whitened by heating. As one cannot very well get manure enough at one time for a bed, he can add to it, day by day, till enough is obtained, carefully observing all the while not to let it get overdry or overhot.

OKRA.—If in rows thin it to a foot apart. We sow a little of the Dwarf Prolific even as late as this for September and October pods. When you begin picking keep the pods picked off clean as soon as they are fit for use so as to prolong the bearing period of the plants.

ONIONS.—Harvest sets, multipliers, shallots, garlic and the like as soon as they are ripe. Letting them stay in the ground after the tops fall down and wither up does them no good. But encourage seed onions to keep green and growing as long as possible. About this time thrips generally attack the leaves, searing them and ripening them prematurely. Spraying with tobacco water might be all right in a small patch, but our large growers don't do anything as a preventive or cure for this pest.

PARSLEY.—As this year's sowing is now in fine using order all of last year's should be rooted out and thrown away. If, however, you use parsley roots for flavoring—and a fine flavoring it makes too—keep some of the old plants for a month or so yet till the roots of the young ones are big enough to use. We have just cleared out a cold frame, put some fresh soil in it and sowed parsley seed in it; this is for winter parsley. We will keep it well shaded till the seedlings come up.

PEAS.—The early peas that weren't picked are nearly ripe now. Pull the straw, dry it, thresh out the peas and use them for the fall crop. We sow it early in August. Further north sow about the end of July. Only early or second early sorts should be used.

SPINACH.—Only in good, moist ground can we get this to do well at this time of year; and then we have to sow often for it "bolts" very soon.

TOMATOES.—The late fruits are generally watery, but if you tie up the plants and reduce their vine production the fruits are apt to be more solid. But for September and October fruit we prefer plants raised from seed sown about the end of May or first of June. If you sow some seed now and grow on the plants in pots they should give nice fruit from October till December.

TURNIPS.—We don't sow our winter turnips till next month, but much north of here a good sowing should be put in during the latter part of July.

Books.

TREES AND SHRUBS OF NEW ENGLAND.

We have received from Bradlee Whidden, 18 Arch street, Boston, "A Guide to find the names of all wild growing Trees and Shrubs of New England by their Leaves," by Edward Knobel. It is a book of 48 pages, 8¼x6 inches, with paper covers, and it contains fifteen full page plates on which are arranged diagrams of typical leaves of the several genera and species of trees and shrubs. Our illustration is Plate VII. of the book, and shows the leaves of the different kinds of oaks. The other plates are as well filled and truthful. Indeed the book is exceedingly helpful, condensed and intelligible. The leaves of two hundred and fifteen species are shown, and an analytical key to each plate occupies the opposite page to it; and fifteen pages are devoted to descriptive matter of the species represented. Referring to the oaks shown in the accompanying illustration we quote the following:

52. Rough or post oak. *Quercus obtusiloba.* Tree 30 feet; acorns on very short stems; small and sweet.

53. Overcup oak. *Quercus macrocarpa.* Tree 40 feet; acorns 1 inch long, deep in a mossy-fringed cup.

54. White oak. *Quercus alba.* Tree 60 feet; acorns 1 inch long; eatable, particularly when roasted.

55. Swamp oak. *Quercus discolor.* Tree 60 feet; whitish shaggy bark, peeling off in shreds; many horizontal branches; acorns sweet.

56. Rock chestnut oak. *Quercus monticola.* Tree 50 feet; acorn 1 inch long, sweet; bark reddish-gray.

57. Dwarf chestnut oak (chinquapin). *Quercus prinoides.* Shrub 4 feet. Our smallest oak. Acorns sweet, many on a limb; bark bitter.

58. Chestnut oak. *Quercus castanea.* Tree 30 feet. Bark whitish; wood very yellow; acorns ¾ inch long, sweet and eatable.

59. Scrub oak. *Quercus ilicifolia.* Shrub, 8 feet. Bark greenish-black, dotted with gray; acorns ½ inch long, bitter.

60. Black oak. *Quercus tinctoria.* Tree 90 feet. Under bark yellow, wood reddish; acorns ½ inch long, very bitter, kernel yellow.

61. Redoak. *Quercus rubra.* Tree 75 feet. Bark dark green-gray, smooth; acorns 1 inch long, kernel white and bitter.

62. Scarlet oak. *Quercus coccinea.* Tree 70 feet. Bark reddish-gray, under bark reddish; acorns ½ inch long, kernel white and bitter.

FERNS AND EVERGREENS OF NEW ENGLAND, also from Bradlee Whidden, is another book of the same size and style as the last, by the same author. It contains eleven full-page plates, and numerous small detail drawings; and it gives a key to the ferns, and concise easily understood instruction how to easily find the names of any of our wild ones. By "evergreens" is not meant rhododendrons, kalmias, and the like, but the club mosses (*Lycopodium*). Thirty-eight species of ferns and four club mosses ("evergreens") are illustrated. It is a very helpful little book, and so plain that by its aid any person who has no knowledge of botany can readily determine the species.

The price of each book is 50 cents.

GARDENING is the most useful paper of its kind in the country; every gardener ought to read it, and he would never regret doing so. E. B

Lake Forest, Ill.

I most assuredly wish to continue my subscription. C. F. D.

Keokuk, Iowa, June 21, '95

Miscellaneous.

CULTURE OF GINSENG.

G. H. L., Portland, Oregon, asks: "Can you give any information on the culture of ginseng? How long does it take to grow for market? Where can plants be procured [Mr. Harlan P. Kelsey, Kawana, N. C., has 40,000 plants, nursery grown, for sale.—ED.], or is it grown from the root? Is it a profitable crop? and is it cultivated to any extent in this country?"

Ginseng (*Aralia quinquefolia*) can be grown—and successfully too—but the exact profits are by no means determined at the present time, and I would hesitate

GINSENG

giving figures which would almost certainly mislead. At present, ginseng commands a cash price in the open market of from $2.50 per pound for poor to $4 per pound for the best quality, and there is apparently an unlimited demand for it at these figures. That the supply which has been in the past entirely sustained by native collectors throughout the region where ginseng is indigenous, is inadequate to the demand, is plainly shown by the steady increase in price from year to year; and sections of country where it was abundant but a few years ago are almost entirely depleted. Eventually it must be a cultivated crop, but the fact that it takes from four to six years' growth before it is ready for the market will alway militate against its general cultivation, as will also the fact that it takes special conditions of soil and treatment to make its growing a success. It can be grown from seed or young plants; but the latter way is perhaps the most satisfactory, as seeds are very difficult to procure, and plants can now be had very cheaply from those who grow it for this purpose. It *must have a rich cool* loamy loose soil, always preferring shade, and should have a heavy mulching of wood leaves in autumn, which are to be left on during the next summer to decay and conserve moisture. While it is a child of the

[CONTINUED PAGE 334.]

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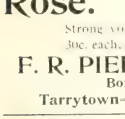

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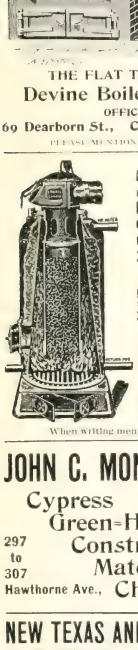

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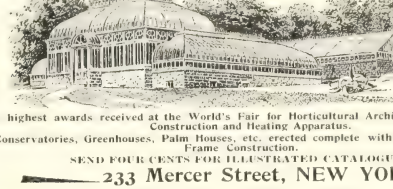

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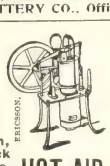

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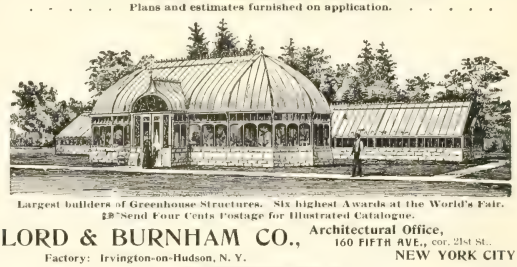

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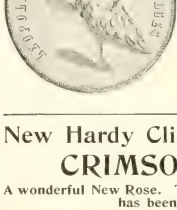

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GARDENING

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THE MAMMOTH TREE OF CALIFORNIA—A YOUNG SPECIMEN AT DOSORIS

Trees and Shrubs.

THE MAMMOTH TREE OF CALIFORNIA.

In the early days of California, when the knowledge of the existence of trees 20 feet or more in diameter and some 300 feet high came to the ears of eastern tree lovers, seeds were gradually sought for and planted. Many seedlings were raised and scattered through the gardens of the eastern portion of the continent, but with the exception of a few here and there all have disappeared. The trees lose their lower branches during the summer, and by the fall only a few of the more recent branches at the top had life, and these few branches would have to be sufficient to carry the tree through the next season, when again they would lose their branches, and in most cases lose them all. The trees usually died entirely before ten years old. It was thought at that time that the trouble arose from improper soil or some other condition which could be remedied by the cultivator, but with the few exceptions noted no success followed a change of plan. In Meehans' Nurseries they have been tried over and over again, and in no case did any one live to reach a diameter thicker than a spade handle. When in California in 1883 the writer saw that the trees naturally grew in swamps, and that when the mountain ranges were thrown up and these swamps drained the trees were left in comparatively dry places, but that their original tastes were no doubt for swampy locations. Near Clark's ranch, on the road to Mariposa, where a great grove is still existing, a number were found in the swamp where he was botanizing, thriving with a remarkable luxuriance—he supposed he had found a new natural location of young trees, but learned afterwards that they were planted there when quite young. With this thought in mind some plants were brought from California and set in a swamp on his own grounds. They grew with amazing luxuriance for a year or two, but the old trouble finally appeared. All except one died, losing their branches wholly during the summer time. Some of the injured branches were sent to that eminent mycologist, Mr. J. B. Ellis of Newfield, N. J., who decided that the injury was caused by a parasitic fungus, almost peculiar to the *Sequoia*, and the spores had followed the seed from the parent trees. Just why this fungus should be more disastrous in the eastern portion of the United States than in its own native home is a question which cannot be answered any more than why the spores of the fungus which went from America to Europe to attack the potato should have been more disastrous there than here in America, the original home of that parasitic fungus. The fact remains that this fungus has swept off nearly all of the mammoth trees that have been raised in our eastern gardens. When this fact was clearly demonstrated through the kindly help of Mr. Ellis the one tree left was sprayed with a copper solution two years ago. This has kept the fungus in check, and this one tree in the swamp, although still presenting a sorry sight, gives some evidence that it may eventually recover. Our hot and dry summers are probably more favorable to the growth of this fungus than the colder mountain elevation in California where the mammoth tree is found, and it would be well therefore for those who desire to try again what success they may have with this tree to either sow the seed or set the young seedling in as cold and shady situation as it is possible to select.

In regard to the planting in swamps, it must be remembered that even a swamp loving tree will not grow if planted directly in the swamp—they want to push their tap roots down and send the feeding fibres near the surface, but above the water level. The proper method therefore in swamp planting is to get a bottomless tub and put it on the surface of the swamp, filling it with earth and planting the tree in it, so that it can send what roots it wants to go down into the swamp in that direction, and let the others extend on the surface as they grow.

Some questions have been raised as to the age of these trees, some contending that as some trees in some cases will make two or three growths a year there may be two or three rings of wood formed a year, and therefore it is not safe to count the age of a tree by the rings of wood; but in the case of the California trees I satisfied myself there by other evidence than the so-called annual circles of wood that the trees are of the great age imputed to them. This was evident from other trees than the sequoia growing in the vicinity. Every horticulturist knows that some pine trees have an annual cycle of branches which push out at the base of the growing terminal bud, by which we can tell years afterwards what age the tree really is. The white pine trees for instance, this cycle, or stratum it might be called, appears at about every one or two feet along the trunk. A tree 50 feet high might have 50 of these strata of branches. I saw sugar pines of some 40 or 50 years old, the age of which could be readily testified to by these cycles of branches cut down, and I found the number of rings of wood corresponded exactly to the number of cycles of these branches. A tree therefore which we know from outside evidence was 50 years old would have the 50 concentric circles. Another method was pursued, namely, to find from a number of smaller trees, the age of which was known, the average width of the annual wood circles. We might, for instance, find that one inch of wood would be formed on the average in from 6 to 8 years. Taking this for data and multiplying by the number of feet in diameter of the huge trees the result would give the corresponding probable age. When the cycles of wood in the large trunks were counted they would correspond pretty closely with what ought to be the result from the known average growth per year. From these examinations no doubt was left on my mind that the trees are of the great age imputed to them.

THOMAS MEEHAN.
Germantown, Philadelphia.

TREES AND SHRUBS IN BLOOM AT ROCHESTER, N. Y., JULY 22.

Buddleia curviflora, a coarse leaved shrub, has racemose spikes of purplish flowers. As it is not quite hardy here we protect it in winter.

Hydrangea quercifolia (oak leaved hydrangea) is in good bloom; and so too are *H. arborescens*, with cymes of greenish white flowers and a few sterile white ones around the margins, and *H. canescens* with greenish white inconspicuous flowers. The varieties of *H. Japonica*, such as Dr. Hogg and Otaksa, underclose protection in winter always get killed to the ground line, but sprout away freely again. They never flower, however, but we sometimes get a few blossoms from two varieties we have under the names *alba* and *rubra*; they don't get killed back as much as the other varieties.

Symphoricarpus mollis, the wolf berry, has rosy white flowers and been in bloom for the past two weeks. The flowers of this species are a little more conspicuous than those of any of the other species of symphoricarpus.

Indigofera Dosua, a dwarf pea shrub from India, is opening its axillary racemes of purplish red flowers. It always gets killed back a little in winter.

The button bush, a common native of the swamps, does remarkably well with us in ordinary dry soil. In fact it seems to develop more handsome foliage than it does in its native habitat. It is in full bloom, and the globular balls of flowers are quite pretty in their way.

The white jessamine (*Jasminum officinale*) has been producing a few fragrant flowers for the past two or three weeks, and will keep on blooming for some time yet. It is not hardy with us. [Neither is it reliably hardy at Dosoris.—ED.]

The chaste shrub (*Vitex Agnus-castus*) has opened a few flowers to-day, and the Cornish heath (*Erica vagans*) is showing a few pale purplish red flowers.

The old man's beard (*Clematis Vitalba*) looks beautiful in white almond-scented flowers, and *C. Flammula* and the common native Virgin's Bower (*C. Virginiana*) are in full bloom and showy. *C. viticella* has still a fair show of blossoms, and *C. cærulea* a few lingering ones. Among the large flowering clematises *Jackmanii* is extensively planted and does well, so too are *Henryi*, creamy white, and Gem, lavender blue.

Several forms of *Vitis heterophylla* are showing their small inconspicuous flowers, but their pale blue bunches of fruit are very pretty later on. *Vitis orientalis* with handsome compound lustrous foliage is a very beautiful form, but it never fruits with us. *Vitis flexuosa* is now in flower and later on will be very showy when in fruit.

Hypericum prolificum, *aureum*, *Androsæmum*, *elatum*, *Kalmianum* and *densiflorum* are in bloom and all yellow. *Androsæmum* has the handsomest flowers among the above mentioned species.

In the way of spiræas *Douglasii*, some of the forms of *Japonica*, *Bumalda*, etc. are still showing quite a few flowers. *Alba*, *argentea* and *latifolia*, all forms of *S salicifolia*, and a form we have under the name of *S. Nepalensis* with small white panicles and distinct foliage are in bloom. The dwarf horse chestnut has been looking handsome with its prettily fringed looking flower spikes for the past two weeks, but it is now past its best.

J. DUNBAR.

GOLDEN OAK SCALE.

I notice what you say in GARDENING for July 1 about the golden oak scale (*Asterodiaspis quercicala*) which was first noticed in this country some fifteen or twenty years ago, and since rather widely distributed on the English oak, *Quercus robur*, and its varieties, the golden oak, *Q. robur concordia*, being one of them. It is now a half dozen years or more since I first noticed the above named species of scale on my specimen of the golden oak, and while being perfectly well aware of the efficacy of kerosene emulsion for destroying such pests I neglected to apply it, and last year many of the smaller twigs and branches of the tree died and were cut away, as I fully intended this season to clean the tree or dig it up. Upon examining the tree this spring preparatory to applying the emulsion not a scale could be found, all having suddenly disappeared, and the tree has made a most vigorous and satisfactory growth. The tree has not been treated in any way

MRS NORTON BIGGS'S FRONT DOOR, FACING NORTH.

different than during former years, but it has cast off the scales, or some insect has destroyed them. They may, however, appear again; if so I will use the emulsion. [Unfortunately they haven't disappeared from Dosoris.—ED.]

Ridgewood, N. J. A. S. FULLER.

RHODODENDRONS—KALMIAS.

A. D. M., Mass., asks about "Removing large rhododendrons, when is the best time to do it?"

Ans. In spring as fresh root growth is beginning to start.

2. "A SHELTER OF KALMIAS.—Will they make a good windbreak for rhododendrons?"

Ans. No, not as they grow here. Kalmias abound in the woods hereabout, being in many the principal under shrub, but we find them more difficult to establish in our gardens than are rhododendrons, besides the latter grow faster than the kalmias.

The Flower Garden.

MY GARDEN IN NORTHERN INDIANA.

I enclose a photograph of my front door facing north, so only having sun part of the day. Please name me a tender vine, not too rampant a grower, something out of the common, to run up the balustrade behind the white oleander, whose box seems to be crooked (for it never is). Shall want to keep the pot in a furnace heated cellar in winter. Can't an allamanda be found to fit this spot?

[Yes, *Allamanda Scottii* or *A Williamsi* will do well there in summer but would bloom better on the sunny side. *Stigmaphyllon ciliatum*, a slender vine with yellow orchid-like blossoms will also do well but there isn't much filling up to it. *Manettia cordifolia*, if good plants are had to start with should make a pretty show there, still it too takes considerable time to fill up the space allotted to it. We have two blue-flowered solanums, viz. S. *Wendlandtii* and *S. Seaforthiana* that would do fairly well there. But two of the best would be passiflora Imperatrice Eugenie or *Pfördti*, and *Aristolochia elegans*. The trouble with these plants is that while they all will grow well at the north door porch where they get part of the afternoon sun, they would grow much better on the south side; further the summer is pretty well advanced before they fill up the space allotted to them. But if you like the color (reddish purple) of the flowers of *Ipomœa paniculata* it would be a capital vine for your purpose, growing freely and blooming all summer. And when fall comes you can dig up the tuber and store it dry in a frost proof cellar as you would a dahlia, leaving it there dry and uncared for till planting out time next May.—ED.]

I have always been thoroughly devoted to vines, twenty years ago my garden possessed forty varieties which of course included the annuals, which are now discarded. My favorite hardy vine is the clematis. *C. Sieboldii*, white, 4 to 5 inches across, bloomed all through May, regardless of summer heat and frosts, it is in a very sheltered corner. *C. Viticella* has bloomed since the first of June and is far from gone, it is on the back porch and is fully 10 feet high and thrifty, but also delicate and graceful and not too massive; one can see all its beauties It is really the most artistic vine I know of. As usually grown, it is bunched on a trellis, but it can only show itself on wires with a chance for development upward. On the derrick is another purple clematis with less blue in it that opens flat; it has been in bloom some three weeks. This was given to me years ago (by a daughter of Solon Robinson of New York *Tribune* fame. He was the first settler of our county—Lake—and his original log house still stands, though covered by clapboards—opposite our court house square—which he gave the town) as a Jackmannii but it is smaller in foliage and flower than Jackmannii and perfectly hardy. *C. Flammula* is well budded and the one against the house is in much better condition than on the lawn, which is not a normal condition of things. Possibly a tile drain through the lawn is the trouble. By the time *Flammula* is gone *C. Vitalba* on the derrick will be in bloom, and *C. paniculata* finishes the season, so I am never without comforting clematis. After many struggles two fairly good plants of *C. Henryi* remain, but Jackman's are all gone. There is a fine plant of *C. crispa* on the northeast corner of the barn, often attaining a height of eight feet, and a fine harbor it is for grass hoppers and blister beetles. *Coccinea* cannot be very hardy with us, it has winter killed [It is strictly herbaceous, dying down to the ground every winter.—ED.]

The refractory vine is the honeysuckle. I get along nicely with the red, but Hall's and the Belgian, especially the latter refuse to live. If year old plants were obtainable, one might succeed for one fine Belgian has been in this town though it is now dead. * * of whom I usually purchase plants, is apt to send out too old and large plants of everything, it is not always a virtue to do so, I mean that my experience teaches me that year old stock transplants most successfully.

As to perennials. The feature of my place is long beds of hardy plants on the outskirts of the lawn, and for this reason, I have only owned the premises 7 years, the old house was to be moved off and a new one built and this has been accomplished—but you know what an upheaval follows building. The perennial b ds are crowded *full* of everything. Each plant is a joy to me and could not be dispensed with. I am gradually selecting favorites for groups and meantime laboring for a good lawn under the discouragements incident upon three dry summers, and improving the trees and shrubs already on the premises (the change in them is wonderful) as well as planting new ones, and always hampered by ill health. Perhaps the iris is my especial favorite. Our soil is not quite sandy enough for them, but the German irises are very satisfactory. In what else do we find such purity of color? The Kœmpfer's are to be

bedded this fall near the derrick for convenience of soaking and the *Lychnis Haageana* is to edge them. They make a splendid show when properly watered.

Tulips I use for edgings everywhere, planting them 3 wide even in the rose bed. The Spanish iris we value highly for cutting and find it more hardy than the English one, which here has to be wintered under a foot of leaves in a cold frame, but it is worth the trouble even when the buds had to be picked to open in the house, because of a small black bug. The yellow day lily—*Hemerocallis*—three varieties, is valued so highly that we plant it near various shelters to prolong the bloom. What could be more beautiful for house and church decoration? The white perennial pea is a prime favorite, it seems to defy drouth. The various spiræas and campanulas are simply indispensable, though they must be watered. I have a coreopsis with very fine foliage and smaller flowers than *lanceolata*, and most beautiful.

What is it? [*C. verticillata*, probably. ED.] also a superb blue and white *aconitum*, a July bloomer. With me *desmodium* is very distinct and desirable. *Anemone Japonica* does best for me north of some building. Every one of my plants died last winter and the blister beetles contend with me for the new planting. Canterbury bells are planted from the seed pans into permanent beds, and enclosed in a frame, what a satisfaction they are; but fox gloves are very uncertain even with this treatment. What does ail *Delphinium formosum* nowadays? [Raise it afresh from seed every year.—ED.] it seems to be impossible to get a thrifty plant.

My chief success is a long bed of native asters, that we have gathered from miles around. This is one border of the drive to the barn, and they constantly improve in beauty and usefulness.

(MRS.) F. NORTON BIGGS.

FLOWERS AT EGANDALE, ILL., JULY 20.

Most of those mentioned July 4 are still in good form. Since then have appeared *Heliopsis Pitcheriana*, a recent valuable addition to the cut flower list. Chicago florists say it sells like hot cakes. It grows about three feet high, producing on long stems single sunflowers over two inches in diameter, of a deep golden yellow. It requires plenty of water.

The ten-petalled sunflower, *Helianthus decapetalus*, suitable for large clumps at the back of the shrubbery, grows four to five feet high, and bears solitary bright yellow flowers over two inches across. Its supposed garden hybrid, the dahlia sunflower, catalogued as *Helianthus multiflorus plenus*, is indispensable in the smallest collection. It forms a bushy plant four to five feet high, well clothed with foliage and flowers to the ground, enabling it to be grown in groups, or well in front of a border. The flowers are double, plump, and full, a clear yellow and three or more inches across. It will bloom more or less until September. Grow a few reserve plants, and cut them back to within a foot of the ground early in July, and thus extend the season of plenty. *Helianthus lætiflorus*, var. *semi-plenus* has semi double flowers inferior to the above.

Monarda didyma is known as horse mint, bee-balm, mountain mint, and Oswego tea. (I include the first common name for the benefit of your Oconomowoc "Novice" who asked for barn-yard names.) It is very effective when seen in masses at a distance, but its brilliant scarlet color must be used with care among other plants. It grows two feet high, is very bushy, and when not crowded by other plants is well leaved and flowered to the ground. The flowers are in close heads or whorls, surrounded by bracts tinted with red.

Monarda fistulosa, a taller growing species with lilac-colored flowers is like the other an indigenous plant, and it improves with cultivation. A form of this bearing magenta-colored flowers is a good addition. It blooms a few days later than *M. didyma*.

The tree celandine (*Bocconia cordata*), also known as the plumed poppy, is a handsome, vigorous growing plant, suitable for isolated positions, standing strong winds well. When planted in a bed its roots should be confined by a bottomless and headless box, as it spreads greatly. It grows six to eight feet high, bearing large panicles of small creamy white flowers. Its main charm is in its handsome, large, deeply cut foliage, glaucous underneath.

Acanthus mollis, the stately bear's-breech, is attractive mainly in its shining broad cut-leaved foliage, and is interesting on account of the leaf of the genus being copied by the ancient Grecians on the columns of their public buildings. The flower spikes rise up two or more feet bearing fox-glove-like flowers more peculiar in their form than showy. It requires wintering in a cold frame.

The blue-flowered cupid's dart, *Catananche cærulea*, in a sunny situation is blooming quite freely, bearing showy, deep blue flowers on slender stems ten inches long, fine for cutting. The ancient Greek women used this flower in their love potions, hence its popular name.

Saint Bernard's lily, *Anthericum Liliago*, makes a rather neat grassy-like clump of foliage, out of which springs numerous stems over a foot long clothed with small white star-like flowers that close up in the evening.

Tunica Saxifraga, in light, well drained soil, makes an interesting border plant, growing but a few inches high, producing numerous light pink flowers in great abundance.

The sea hollies (*Eryngium giganteum* and *E. amæthystinum*) are good examples of the odd ties of nature. When in bloom, the stems, bracts and flower heads have a peculiar metallic lustre that one of an imaginative turn of mind could easily presume them to be choice specimens of metal work. They grow three to four feet high with spiny tufted leaves and tall many branched flower stems. The flowers, in shape and size, resemble somewhat a clover blossom and are of a steel-blue color.

The blood colored alum root, *Heuchera sanguinea*, is one of the choicest plants recently introduced, and seems to be perfectly hardy and satisfied with ordinary cultivation. It forms low tufted evergreen foliage of a pleasing green, and for three months continues to throw up numerous long, wiry stems crowded with rather small bell-shaped, bright crimson flowers, that last well when cut. It is a native of Northern Mexico and Colorado.

Haage's lamp flower, *Lychnis fulgens* var. *Haageana*, is a brilliant mass of color in many shades of crimson and orange, and is well suited for the front of a border. It grows about eighteen inches high, producing single, flat, open, flowers two inches across.

Coreopsis lanceolata is so well known that it needs no description. With me it so over-flowers itself that the individual blooms are small and imperfect. In the wild garden it does better. *C. grandiflora* does well, growing about three feet high and producing, on long stiff stems, deep yellow open flowers two or more inches across. *C. delphinifiora* grows about the same height producing yellow flowers with a dark center.

Yucca filamentosa, the Spanish bayonet, is in its prime, and in the twilight is very effective. Being a native of a more sunny clime, each plant cannot be depended upon to bloom every year, but in a group of a dozen plants seven to eight magnificent spikes of bloom may be looked for. The foliage is sword-like, some two feet high, evergreen and bordered more or less with thread-like filaments. The flower spikes reach a height of six feet, branched from the top of the leaves and thickly covered with pendent creamy white cup-shaped flowers. It thus produces a flower spike four feet long and eighteen inches in diameter. It requires deeply dug, light, well drained soil.

The wild senna, *Cassia Marylandica*, belongs in the shrubbery, where its acacia-foliage is very handsome. It grows about four feet high, forming in time quite a bushy plant. Its yellow flowers add to the charm of its foliage.

Gypsophila paniculata is the best member of the chalk plant family. When staked early in the season to prevent spreading out from the center it forms a charming cushion two feet high and three or more broad completely covered with small whitish flowers that are excellent for cutting. It requires an open situation.

The plantain lily (*Funkia ovata*) is now in bloom; it has deep lilac flowers. The best of the family, *F. subcordata*, the Corfu lily, will not bloom until August. All are planted in shady situations where the sun does not burn their foliage. Old plants, particularly of *subcordata*, will form handsome mounds of overlapping foliage, eighteen inches high and three or more feet in diameter, that is very attractive. The flower stems rise above this mound, bearing the blossoms in racemes.

The variegated lemon thyme, *Thymus citriodorus* var. *aureus* should be in every garden frequented by the gentler sex. It is grown only for its highly aromatic, evergreen foliage of green and gold, and makes an attractive border about eight inches high. A few sprays placed in the after dinner finger bowl give a pleasant fragrance. Each spring the plants should be lifted and replanted in a deep, narrow trench, the whole plant, except a few inches of its top being buried. When complete the line of exposed foliage should not be over two inches wide. By midsummer it will be ten to twelve inches wide.

W. C. EGAN.

FLOWER GARDEN QUESTIONS.

J. P. T., Randolph Co., W. Va., asks: 1. HARDY TRAILING PLANTS for a rockery in a sunny, dry situation?

Ans. There are very few indeed that will thrive there without some special preparation for them. Among the most promising are moss pink, bear berry, portulacca, wild cactus, stone crop, perennial dianthuses, golden alyssum, and white rock cress. But if you dig out some deep wide holes in it, or blast them out if it is rock and fill up with good soil, and there plant some shrubs, as bayberry bush, American creeping euonymus, bear berry, prostrate junipers, ink berry, fragrant sumach, and the like, to give a little shelter, make some surface compost, and arrest water, lesser plants could be spread among and about them. Of course many plants will come up in spring and look well even in poor soil; but it is apt to look rather burned up in August. We have lots of nice trailing plants, as vinca,

YUCCA GLAUCA IN THE GARDEN.

lithospermum, dwarf speedwell, Veitch's ampelopsis, corollata euphorbia, lily of the valley, hardy ipomœas, roses like *foliosa*, *nitida*, and *Wichuraiana*, but they all need a little indulgence in summer.

2. A SHOWY WILD PLANT.—A friend of mine saw at the natural bridge in Virginia a beautiful rock plant growing on a wall, with apparently no soil, in bloom in September. The blossoms were somewhat like large nemophila, rose, yellow and white, and made a perfect mass of color. Do you know it?

Ans. Unless it was portulacca naturalized there we cannot say

3. BULBS IN A ROSE BED.—What are some of the best crocuses, tulips and narcissi? Would it do to set tulips deep in the tea rose bed at the time the roses are set indoors for the winter, and would they have finished blooming by the time the roses should be planted out next spring?

Ans. Crocus—get the large flowering varieties of crocus—white, blue, striped and yellow, and plant them as early as you can get them, say in September or October. Good single tulips are Duc Van Thol, scarlet, small, early; Artus, scarlet; Belle Alliance, brilliant dark scarlet; Coleur Cardinal, dark red; Vermillion Brilliant, vivid vermilion; Chrysolora, yellow; Canarybird, yellow; Keizer Kroon, scarlet edged with yellow; Rose Grisdelin, rose and white; Pottebakker, white; and La Reine, white tinged with rose. Double tulips are Imperator Rubrorum, scarlet crimson; Rex Rubrorum, bright red; Tournesol, red and yellow; La Candeur, white. And get a few parrot tulips and Gesneriana tulips and some mixed bulbs of Bizarres and Byblœmens for late. All of these tulips except the late ones are also among the best for pot culture. Lift and pot the roses about the end of October and plant the tulips at once. While you might plant them where they wouldn't interfere with the roses next summer, tulips are better out of the ground than left in it in summer, and it would be the end of May before it would be well to lift them. Plant the late blooming sorts by themselves.

OF NARCISSUS we can recommend the trumpet daffodils as Trumpet major, Horsfieldii, Emperor and Empress, all single, but except the first named a little high priced. They are very hardy though, sure to bloom and multiply freely. The double daffodil (Von Sion) so much grown for forcing is very pretty the first year after planting, but after that its flowers assume a green-yellow color that is quite disagreeable. Stella and Leedsii are good common sorts. And the Orange Phœnix, Silver Phœnix, and particularly the Sulphur Phœnix, are generous, hardy and common but good. Biflorus, Jonquil and Campernelle are worthy kinds to grow in clumps in sheltered places. And get the early (*ornatus*) poet's narcissus, common poet's narcissus and the double flowered one. The polyanthus narcissus, to which paper white and Chinese Sacred belong, are not hardy enough.

CUPID SWEET PEA.—Would it look best in an ordinary bed or in a border?

Ans. We know so little about it, and nothing by personal experience, that we cannot tell. That it is as dwarf, compact and floriferous as was represented, however, we are satisfied. It was exhibited as a pot plant in London some weeks ago. Its flowers are white. We have heard whisperings of a pink one to match it having been lately produced in California.

YUCCAS IN THE GARDEN.

We look upon the common yucca (*Y. filamentosa*) as one of the most indispensable hardy plants of the garden. It will grow most anywhere except in a swamp or dense shade, and once established it lives forever. It is easily raised from seed, and plants three years old bloom nicely, and it is hardy over a large section of the country. With us it blossoms from the end of June until the middle of July, making a fine show. We may grow it in clumps here and there, especially in the neighborhood of rocks, and as isolated specimens on the outskirts of shrubberies. In deep, rich, sandy land it seems to attain its greatest development, but it isn't at all particular as regards soil, and we know of it in fairly good condition in poor sandy land. Undoubtedly it is our finest garden yucca. The noble *Yucca gloriosa*, so fine in the South isn't hardy in the north.

But *Yucca glauca* is hardy with us. It is beautifully and truthfully shown in the accompanying illustration from this year's "Report of the Missouri Botanical Garden," and for which we are indebted to the kindness of the director, Dr. Wm. Trelease. Our readers will observe that this is the kind generally known as *Yucca angustifolia*, the representative Rocky Mountain species. It is perfectly hardy with us, and blooms two to three weeks ahead of *Y. filamentosa*, but it isn't as showy a plant as the last named by a good deal. It is quite long-lived, however, and in time makes fine large clumps that are distinct and ornamental.

WATER PLANTS IN A TUB.

J. B. G., Long Island, writes: 1. "I planted *Nymphæa odorata gigantea*, *N. Zan-*

zibarensis, *Nelumbium speciosum*, (one root each); and water hyacinth and water poppy (one plant each) in wooden grape baskets and submerged them in a half cask. The hyacinth and poppy nearly fill the tub with leaves and blossoms, and the other plants have not shown on the surface. Will they appear later, or have the rampant ones smothered them?

2. "With no greenhouse, is it possible to keep these over winter, and how?

3. "The enclosed flower and leaf?"

1. Probably both the nymphæas and nelumbiums are dead. You shouldn't have had them in the same tub with the water hyacinths and poppies, these grow and spread so fast on the surface of the water as to kill out small lily leaves trying to get up to the light. Even if *N. Zanzibarensis* hove in sight now it would hardly be of any use this year, and it does not winter well. Raise it from seed every year.

2. Yes, in a pail of water in a light part of a frost-proof or little warmer cellar. But have two pails—one for the hyacinth and one for the poppy; when grown together the hyacinth outgrows and smothers the other. The shallower the pails are the better; little shallow tubs are preferable; half an inch of water is enough, but be sure the water is up to the top even if you fill the bottom with sand or soil.

3. *Platycodon grandiflorum*.

FLOWER GARDEN QUESTIONS.

Z. B., Tower Hill, Ill., asks:

1. "SHOULD FERNS BE WATERED overhead as well as at the root?"

Answer. Maiden hair ferns and gold or silver powder ferns (*Gymnogramme*) grown in pots should not as a rule be watered overhead; at the same time, especially in the case of maidenhairs, many of our florists water their young stock in no other way than overhead with a hose. But do it early enough in the day to let the fronds get dry before nightfall. Out of doors a sprinkling overhead won't hurt the plants, indeed if done gently it will do them good. But independent of this soak them at the root.

2. IPOMŒA LEARI AND I. GRANDIFLORA. What shall I do with them this autumn?

Ans. You will probably find lots of vine of *Leari* running on the ground and rooting at every joint. About the end of this month dig up a few of these, cut them back to an eye or two beyond a good joint of roots, and pot a few of them, singly or two or three together in a 3-inch or 4-inch pot, and keep these over winter in a warm window. Then let the old plants die. Let the *I. grandiflora* die, and renew it from seed next spring.

"HALL'S JAPAN HONEYSUCKLE, when to plant it and how to treat it?"

Ans. As it lifts with good fibrous roots it may be planted any time between now and frosty weather, or in spring. If the vines are long when you get them cut them back to a foot, they'll be sure to grow. For the first winter let it lie on the ground and throw some leaves, rank litter, or brush over it to keep it from being heaved by frost. It likes good moist ground, and seems happiest in a very thin shade.

"HARDY BLUE AND WHITE PHLOX, should they be planted in autumn?"

Ans. "Hardy blue and white" are too indefinite for us to know what kinds are meant. But we will answer you in a general way. All manner of phloxes can be planted with safety in spring, and we would rather plant the tall, late blooming sorts then than in fall. The blue *P. Stellaria*, moss pinks, and *P. verna* and *P. procumbens* we would plant in August so that they might get a good root hold before winter, or in early spring.

"DEUTZIA CRENATA, *Exochorda grandiflora* and *Anemone alba*, what satisfaction do they give as regards hardiness and blossoms?"

Ans. The exochorda blooms in May and the deutzia in June. Both shrubs are quite hardy here, free blooming, and copious, and run in size from 4 to 10 or more feet, according to age, situation, soil, etc. The anemone (we presume you refer to *Japonica*) is a hardy perennial blooming in August and September, and is one of the gems of its season. It likes good ground, moderate moisture, and a mulching in winter. Sometimes it thrives luxuriantly, running 3 to 5 feet high, at other times it needs coaxing to carry it along.

"HARDY PERENNIALS to bloom all summer?"

Ans. Snowdrops, crocuses, Siberian squills, pansies, narcissi of sorts, hyacinths, tulips, white rock cress, moss pink, spring adonis, spring irises, lily-of-the-valley, columbines, pyrethrum, trillium, golden alyssum, bleeding heart, German iris, campanulas of several kinds, pæonies, poppies, spiræas, larkspur, coreoposis, gaillardia, sweet williams, achillea Pearl, lilies, Kœmpfer's iris, monarda, yellow and Thunberg's day lilies, phlox, gypsophila, ageratum-like eupatorium, dwarf sunflowers, platycodon, white day or plantain lily, Japan anemone, mist flower, pink sedum (*S. spectabile*), Siebold's sedum, and several fine asters and many other plants.

"HARDY SMALL SHRUBS that will give a succession of bloom from spring till fall?"

Ans. Mezereon, star magnolia, white rugosa, Agnes Emily Carman, and Mme. Georges Bruant roses; tree pæonia, Thunberg's, Van Houutte's and Bumalda spiræas, Simon's Japan quince, *Deutzia gracilis*, Ghent azaleas, if they flourish in your soil; *Deutzia crenata*, if kept low, Lemoine's mock orange, weigelias, golden hypericum, hydrangea, oak-leaved, also *paniculata grandiflora*; Siebold's lespedeza (better known as *Desmodium penduliflorum*). But these are only a few among many. Now, while the mezereon and *Deutzia gracilis* never become tall spreading shrubs several of the others, after some years, may become large; at the same time they all bloom when quite small. You can transplant them in fall or spring with safety, but spring is the safest time.

AN EMPTY FLOWER BED.

W. M. P., Hagerstown, Md., (1) has a circular flower bed, exposed on all sides and filled with excellent soil. The common purple flag does well in it, so does *Sedum spectabile*, but gladioli have been a failure in it. Further: (2) "I have seen that the Cape fuchsia (*Phygelius Capensis*) did well in such a place also the (3) blue spiræa. What do you think of them? Also of (4) Maximilian's sunflower? (5) Would it be best to set them out in the fall or the spring?"

1. FILL THE bed with yuccas, they will be a mass of green all the time and from June into July a pretty show of blossoms. They need no care. Or for a continuous summer show fill it with striped petunias. Or fill it with daffodils for spring blossoms, then as they begin to fade and are cut over sow portulacca over it; in after years the daffodils will come up and bloom in spring, die down in June, and be succeeded with self-sown portulacca. But in a bed that will grow blue flags, with a little care, we can grow many fine garden plants.

2. CAPE FUCHSIA is quite an appropriate name, and surely prettier than "Cape figwort," the English name as given in books. Whether or no it will thrive there, though, can only be known by experiment. Is it quite hardy with you? It isn't at Dosoris.

3. BY "BLUE SPIRÆA" we presume you mean *Caryopteris Mastacanthus*, the little Chinese shrubby plant about which a good deal has been said since a couple of years. We know of no reason why it shouldn't thrive in that bed. But mulch it with rough litter and branches in winter. As it comes into bloom in late summer or fall, plant verbenas or sow portulacca among it to brighten the bed in summer.

4. MAXIMILIAN'S SUNFLOWER comes into bloom about the last of September and lasts well into October; it is one of the boldest and handsomest of its race, a hardy perennial, and well worth growing. It likes good ground, shelter, and a position where it may grow 7 to 9 feet high without any danger of getting broken by wind or rain.

5. We should prefer spring planting.

HARDY PERENNIALS FOR JUNE.

An Ontario subscriber asks for a list of hardy perennials that would fill in between the late tulips and the first annuals, say between May 25 and July 1. "I have a great lack of bloom then, pansies and roses being about all."

The variety of pretty plants you may have in bloom at that time is legion. About the time the tulips are in flower you can have spreads, belts or clumps of moss pink, golden alyssum and purple aubrietias; the poet's narcissus is with you, and you have got trilliums, bloodroot, Virginia lungwort, spring orobus, lily-of-the-valley, vernal irises, bleeding heart, Alleghany dicentras, and others. The common and yellow cypripediums bloom in May and into June, and *C. spectabile* in June. We have gentian-leaved and long-leaved veronicas, sea thrift, white and red valerian, fraxinella, Oriental and Iceland poppies, peach-leaved bell flowers, pæonies of several kinds, German irises, grandiflora and lanceolata coreopsis, potentillas, thermopsis, baptisia, pyrethrums, Dumortier's and yellow daylilies, perennial gaillardias, Haage's and Chalcedonian lychnis, ragged robin, Hoopes' helenium, large-flowered betony, alpine centaurea, spiræas, such as *Aruncus*, *filipendula*, and Japan hoteia, showy erigeron, yellow asphodel, doronicums, foxgloves, larkspur, erect white clematis, the early lilies, as *tenuifolium*, *pulchellum*, *Hansoni*, etc., and so on. Several of these begin blooming before the tulips have faded and others last into bloom till after the first annuals come in. Before the first of July yuccas, Kœmpfer's irises, hollyhocks, trumpet lilies and a host of annuals as mignonette, Drummond phlox, sweet peas, candytuft, etc., begin to put in an appearance.

FALL SOWING OF SWEET PEAS.

Mrs. W. G. L., Falmouth, Mass., says she raises the finest sweet peas "all around" there; "they do extra well, as where they are grown is so warm under a big hill." She sells all she raises. But as she has heard so much about the advantages of fall sowing over spring sowing as regards earliness, she hopes by sowing in fall to get her sweet peas in bloom by the first of May.

THE DAWSON ROSE

You cannot get them in bloom at Falmouth by the first of May, nor probably by the first of June either, no matter when you sow them out of doors. North of New York sweet peas should not be sown before the end of October. If sown earlier and so that they will grow some inches above ground before winter sets in even under a fair mulching they are apt to get killed in winter. But sown in late fall they start very early in spring and seem to have great power of resistance as regards frost in spring.

PERENNIAL PHLOXES—AURATUM LILIES.

F. C. C., Bath, Maine, ask: 1. "What are the colors of *Phlox suffruticosa*? Are they as fine as those of *P. decussata*? Where can we get the plants, as we fail to find them catalogued?"

Ans. Phlox suffruticosa is a syn. of *P. glaberrima suffruticosa*, a native plant. *Phlox decussata* is a syn. of *P. maculata*, also a native of this country. *Phlox paniculata* is likewise indigenous in this country. These three species have given rise to the many splendid perennial phloxes of our gardens that bloom between June and September. And the three have become intermixed beyond recognition. The June and July phloxes mostly lean to *P. glaberrima* and *P. maculata*, and the large later ones to *P. paniculata*, so that in a garden sense there is practically no distinction between *P. suffruticosa* and *P. decussata*, they are the early phloxes.

2. "One of the finest of my auratum lily stalks, heavily budded, turned yellow and died as the buds were trying to expand. We could not dig around it now without injury to the others to ascertain the cause and would like to know if the May beetle larvæ ever trouble the *auratum* roots. The others are doing finely."

Ans. It may be, but we hardly think that the May beetle's grub is the cause. Ever had lily disease?

PLATYCODON GRANDIFLORUM.

L. G. C., Va., writes: "W. C. Egan, page 323, says '*Platycodon grandiflorum* is a gem in any collection, blooming from July 4 until September.' I have had it for several years but it never blooms except once for me. Is it my bad management?"

Ans. Both the typical blue flowered form, the white (dingy white), single and semi-double, and the dwarf form known as *Mariesi*, have been in bloom at Dosoris since the first of July, and have every appearance of keeping in bloom for some weeks yet; they are in their best estate during the second and third weeks of July. Towards the last, the blossoms are fewer than when in the flush of their beauty. It is not bad management on your part, it is simply a quicker maturity on the part of your plants.

"HYPERICUM MOSERIANUM, he says requires a cold frame in northern Illinois for winter. Does it with you?"

Ans. No. Several plants of it growing in an open border at Dosoris, and left unprotected last winter, are now in lovely bloom. They were killed back to the ground, however, and we are satisfied that it would have been greatly to their advantage had they been well mulched over winter. As the climate at Highland Park (near Chicago) Ill., isn't nearly as favorable for wintering somewhat tender plants as that of Dosoris, the protection of a cold frame there in winter for this pretty plant was a wise provision.

WILTING OF LEMON VERBENA and rose geranium when cut. E. S. P., Chestnut Hill, Philadelphia, writes: "Please give directions as to the proper time and way of cutting lemon verbena and rose geraniums for putting in water in the house. Mine so often droop, although I carry a jug of water to the garden with me to put them into as soon as cut." They wilt because their evaporation is greater than their absorption. If cut in the morning they are less likely to wilt than if cut in the heat of the day, but we find that those cut in the afternoon even plump up rapidly. The moment they are cut they should be plunged bodily, overhead, into a pail or tub of water, and left there a minute or two, or long enough to plump up stiff, if they are at all wilted. If left to wilt much before being set in water it isn't an easy matter to plump them up. Shade, or overcrowding, or overfeeding, produces a soft, sappy wood that wilts most as soon as it is cut.

"ANEMONE SYLVESTRIS," writes F. N. B., "is an utter failure with me.' Treat it as a biennial by raising a fresh lot from seed every year for blooming the next year. True it is a perennial, but like columbines, delphiniums, hollyhocks, sweet williams and foxgloves, they behave b st treated as biennial.

Roses.

THE DAWSON ROSE.

The rose figured was planted in 1893, and the photograph from which your engraving was made was taken June 14, 1894. When planted in 1893 it was just out of the propagating bench, so it may be seen that it is very vigorous in its habit of growth. It was raised by Mr. J. Dawson, of the Arnold Arboretum, and is a cross between *Rosa multiflora Japonica* and the hybrid perpetual General Jacqueminot, the first named being the seed parent. Its foliage is of a darker green than that of *multiflora* and shining as if varnished; the thorns are reddish in color, the flowers semi-double and borne in clusters of ten to thirty or more, and

the buds opening in succession so that the flowering season covers quite a period of time. The flowers are of a light rose color, fading to a still lighter tint, and they are sweetly perfumed, but not so much so as its seed parent.

This plant came through the last winter without protection, in perfect condition, and bloomed even finer than it did last year. It was planted to screen a bulkhead and doorway to the greenhouse from the street, and will certainly outgrow its present accommodations. It is trained to a trellis and has never been pruned and does not require it when given plenty of room. T. N. C.

NOTES ON ROSES.

VARIETIES.

My favorites among the roses that bloom early are the red and white rugosas, the blossoms and fruit of which have great beauty, but which are worth growing simply for their lustrous healthful foliage; the hybrid rugosa, Mme. G. Bruant, which has long pointed buds, white semi-double blossoms and fine foliage; Stanwell's Perpetual, a delicately colored, fragrant, very floriferous blush rose, but with me it is so far from being a perpetual that it has never shown a bloom later than June; Blanchefleur, a white cup-shaped rose with flesh tinted center, very fragrant, distinct and fine; Dawson, a rampant grower with numerous clusters of small, single or semi-double or rose pink blossoms that have something of the grace of the finer wild blossoms; and lastly Harrison's Yellow, the half opened buds of which should be cut before the sun has faded them. Of the varieties mentioned above only one, the Blanchefleur, needs winter protection here.

Following these earlier varieties and in this latitude, and covering in their season this bloom the second half of June and the first week in July, I prefer among the lighter colors Anne de Diesbach, Francois Michelon, Mme. Gabriel Luizet, Mrs. John Laing, La France, Baroness Rothschild, Mabel Morrison, Merveille de Lyon, Margaret Dickson, Mme. Caroline Testout and Eliza Boelle. Two of these, Eliza Boelle and La France, do best in a perfectly drained well sheltered position and require careful winter protection. Mme. Luizet appears to be somewhat less hardy than most of its class. It lives through our winters even when unprotected, but more than most it repays in the quality and amount of its bloom protection enough to shield it from the winter sun. I consider it one of the very finest in the whole list. Baroness Rothschild and her daughters, Mabel Morrison and Merveille de Lyon, while hardy enough are poor growers. I get a dozen blooms from Mme Luizet or Mrs. Laing for every one from any member of this aristocratic group. More prolific than they but still considerably less so than most hybrids is the new white rose Margaret Dickson. It is vigorous, hardy and its blooms, which are fine in color and form, are supported by handsome foliage; in the fragrance there is something that suggests Bourbon blood. Anne de Diesbach and Francois Michelon are very choice roses; but the blooms of the former are few and the buds of the latter seem peculiarly attractive to insect enemies. Eliza Boelle is one of the most satisfactory of white, pink tinged roses. It is not very hardy, I give it a sheltered well drained position close by a cellar wall, and there it seems perfectly at home; it far surpasses in quality its well known and more floriferous relatives, Coquette des Alpes and Coquette des Blanches. I have no rose whose blooms excite so much wonder and admiration as Mme. Caroline Testout. In order to test its hardiness two specimens were planted last July in the open garden and were given a moderate protection of sods. They came through the winter in as good shape as the hybrids. While the blooms from the out of doors plants are not as large as those grown under glass they have the same surpassingly beautiful color. It is true that the plant gives but few blooms at any one time, but the quality of these and the frequency of the periods of bloom make it very desirable.

Of the varieties which are intermediate in color between light and dark the following have given me greatest satisfaction: Alfred Colomb, Marshall P. Wilder, Marie Baumann, Prince de Portia, Ulrich Brunner and Gloire de Margottin. Most of these are so well known that they do not require description. I think it pays to remove at least one-third of the June buds from Colomb, Wilder and Baumann.

The list of deep crimsons should include Gen. Jacqueminot, Fisher Holmes, Baron de Bonstettin, Xavier Olibo, Earl of Dufferin, and in some situations Jean Liabaud. In color and shading I find little to choose between Olibo and the Earl of Dufferin, the former is the more vigorous, the latter has somewhat finer form and finish.

But how can we secure out of door bloom through midsummer and early autumn? My plan is as follows: The Japanese trailer Wichuraiana with its shining perfect foliage and charming single flowers of delicious fragrance is in bloom through most of July; and during the first half of the same month Baltimore Belle, Gem of the Prairies and others of the setigera class are at their best. From late July until October many of the hardy hybrids, if well cared for, will give considerable bloom. But there are certain varieties that are hardy with protection, which if rightly managed bloom quite freely until frost. Among the best of these are: Appoline, Hermosa, Mrs. Degraw, Souvenir de la Malmaison, La France, Cecile Brunner and Clothilde Soupert. The choicest of these in my judgment are La France and Souvenir de la Malmaison. Mrs. Degraw, Hermosa and Clothilde Soupert are perhaps the most floriferous. A. D. MORSE.

Amherst, Mass.

PROPAGATING HARDY HYBRID ROSES.

P. F., Clifton, Ohio, asks "how to propagate hardy hybrid roses."

If your correspondent has a greenhouse the best way to propagate hybrid roses would be to either plant out the parent plants on the greenhouse bench in good rich soil and give the proper conditions to produce good healthy growth, or else to grow them in pots, shifting as soon as needed. When sufficient size is obtained take the half ripened canes and cut them into two eyed cuttings and trim back the foliage somewhat, and place in well shaded propagating bed in greenhouse; at this season no bottom heat is necessary, and bench should be kept decidedly moist with frequent syringings, though it is best to keep the foliage dry at night to avoid black spot. It is useless to try to propagate cuttings from outdoor grown wood. If the plants from which it is desired to propagate are growing outside the best way to propagate in small quantities is by layering, that is cutting the half ripened canes slantwise about three fourths through at an eye and bending over the cane and covering with earth. The cane thus treated will soon form roots and grow.

PAUL M. PIERSON.

Scarborough, N. Y.

MILDEW ON ROSES—PROPAGATING.

G. P. K., Hudson, Mass., asks: "1. Can you tell me of a way to prevent mildew on H. P. roses and how to get rid of it after it comes? The continued dull weather seems to be causing some of my bushes to mildew.

2. "What is a practical method of propagating rose cuttings and is now a proper time to do it?"

1. Mildew is caused by unfavorable weather or other uncongenial conditions as damp, chilly nights, protracted wet weather, fogs, sudden changes of temperature, over-wet soil, a close or low situation, and so on; and, too, some roses are so susceptible to it that they are sure to become a prey to it. We used to dust sulphur over the plants to stop the spread of the mildew, but it never was quite effective. Bordeaux Mixture, nowadays, however, is the sovereign remedy, but it is only a preventive, not a cure, and it must be applied before the mildew appears and repeated every week or two throughout the summer. Mildew appeared on our outdoor roses, this summer the third week in June, earlier than usual.

2. Tea, Noisette and Bourbon roses may be propagated from cuttings now, but the plants from which the cuttings are taken should be greenhouse or window grown. You cannot very well strike cuttings taken at this time of year from outdoor H. P. roses. The best time for propagating roses from cuttings is winter—December to March or April—and place, in the greenhouse. Cuttings of the ripe wood of outdoor H. P. roses may be taken in November, cut into 4 to 6 inch lengths, tied into small bundles, then buried in a frost proof pit or frame, heels up heads down, till spring, when they should be unearthed, unfastened, and planted closely in rows, and this time heads up, in a cold frame or half shaded border. While many may fail, a good many are apt to grow. But you can propagate any kind of rose now in the open ground by layering its shoots. We simply elbow them into the ground, burying the bend two or three inches deep and tamping the ground firm with the foot to hold it in place. And if the bark will lift easily, you can now propagate by budding all you wish to; you can bud good kinds on to poor kinds, and put one or more varieties on a bush as you may elect.

The Greenhouse.

THE GREENHOUSE.

Now that the houses are comparatively empty see that the glazing is in good condition, every pane properly bedded and tacked in place. A coat of good paint not only gives them a good appearance, but also adds greatly to their water tightness and preserves their wood. See that the benches are in proper repair, that every board is sound enough to carry its load for another year, and that all the cross bars are strong and have a good hold of their supports.

Be sure that palms and other tropical plants in the greenhouses don't get spotted by sun-burning, and especially particular about the shading to renew it if necessary after a heavy rain storm.

Give plants abundance of water at the root and a good syringing overhead every fine day, in the afternoon. Ventilate freely in fine weather, but there is no more sense in exposing hothouse plants to cold, raw weather than there is animals. The winter blooming plants now growing outdoors in the garden will need attention in the way of timely pinching in, say of bouvardias; the removing of unseasonable flowers, as carnations; and cutting away the runners, as of violets. Potted plants plunged outside, say poinsettias, genistas, stevia, eupatorium, should be kept well watered, allowing them to get overdry hardens their wood and impairs their blooming. Kepot chrysanthemums from small to larger pots, feed the well rooted ones with a little liquid manure now and again. If you intend planting out any on your greenhouse benches the sooner it is done the better they are likely to be.

Pot up a lot of tuberous begonias for blooming between now and November. Order your winter blooming bulbs, and pot up a lot of Harrisii lilies now if you can get them, but don't force them hard to begin with. Paper white narcissus and Roman hyacinths may also be potted now for early flowers in winter.

EARLY DAFFODILS IN POTS.—An Ontario subscriber asks: "What treatment would you advise in order to have extra early daffodils—say Horsfieldii—in pots?" If you mean your own grown bulbs, get them out of the ground—if they are still in it—at once and let them stay dry for a month in a cool shady shed or room. Then pot them—5 or 6—in a 6-inch pot, stand them out of doors on a layer of ashes and cover the pots over four or five inches deep with loam or ashes, and if a shutter is set over them, raised a little above them, to ward off rain, so much the better. Let them stay there till sharp frost comes, when, if you cover them deeply with tree leaves, you may let them stay there till needed for forcing; or bring them into a cool cellar, treating them like hyacinths and tulips in pots. The necessary points are, good well-ripened bulbs, pot early, and let them have a long, outdoor, cool, non-excitable period in which to make roots, then after Christmas bring them into warmer quarters as you want them. Don't rush them.

DISA GRANDIFLORA: HOW TO GROW IT.—Apropos of our note about this plant in GARDENING, page 311, Mrs. E. T. Royle, the eldest daughter of the late Mr. James Taplin, writes: "I have just been reading your note on *Disa grandiflora*, with its reference to my father, for which I thank you. With regard to the disa, I believe the chief mistake made is the lack of sufficient coolness at the root. You know its home is on damp hillsides, near Cape Town, South Africa, with, I believe, a limestone substratum. My father's plan was to pot it in a broad shallow pan, in rough peat and sand, topdressed with live sphagnum moss, lavishly drained with lumps of rough stone. This not only provided drainage, but kept the roots cool. The plants were kept in the camellia house, as you doubtless remember. But for several years he had a lot of disas plunged outside in a shady bog garden, where they remained all summer, and they bloomed magnificently. I have never seen their equal since, and believe this the best way of treating these plants."

GET YOUR DUTCH BULBS AT HOME.—I was glad to see your advice, page 264, to get bulbs of American dealers. I imported a good many last year at very low first cost, but the many charges soon raised an amateur's box above the price of home dealers and I want no more of it except as it can be done by mail.

New Jersey. E. R.

The Fruit Garden.

THE FRUIT GARDEN.

Plums and peaches may taste better when they are allowed to ripen perfectly on the trees before being plucked, but apples or pears don't; they should be gathered before they are ripe and brought indoors into a coal, dark room or cellar and there allowed to mellow at leisure. Among pears we now have Doyenne d' Ete, Osband's Summer and Giffard, in using condition, and some Margaret and Clapp's Favorite plucked and in store. When gathered eight to twelve days before they are ripe they don't assume that dry, insipid condition that pears that ripen on the tree are apt to have, they are juicy, refreshing and well flavored, and they keep longer. Early fruit when stored in the house or cellar is apt to be kept too warm and dry, avoid this as much as practicable, heat hastens maturity and decay, and dryness causes it to shrivel. While we can stow winter apples in bins or barrels with perfect safety, keeping fruit in any such bulk at this time of year is to invite decay.

It is now time to set out strawberry plants. The ground should be deep, rich, and moist if possible. The best sorts to plant are the ones that thrive best in your locality, for no strawberry is good in all places. We recommend for trial Sharpless, Bubach, Parker Earle, Marshall, Timbrell and Brandywine. Some one of these is almost certain to suit your ground. What are called potted plants, are runners that have been rooted into little pots plunged under the brim in the ground; when the pots are filled with roots the runners are severed from the parent plant, and are fit for planting out. Before setting them shake the ball of earth and roots a little to unravel the roots somewhat, and plant firmly. Strawberry plants set now or for six weeks to come should yield a fine crop of big berries next June. While as potted plants is an excellent way to get young stock from the nurseryman, it isn't at all necessary in the case of saving runners from our own beds, when they are well rooted lift them with a trowel and plant them out at once. Our rows are two feet apart, and hills about 20 inches asunder in the row, three plants in each hill. We also have a good many rows where the plants are set six to eight inches apart in the row and not in hills at all. But this system is only for the garden, in the field the rows should be three feet apart.

As soon as raspberry bushes have finished bearing cut out the old canes and the most slender and superrumerary of the young ones, but don't shorten back any of the young canes retained for next year's crop, it would cause them to sprout again, hence become more tender than if left uncut, hence more apt to winter kill.

Thin out old, scraggy, and worthless wood from the currant bushes to allow of the young stems remaining ripening up their wood better.

STRAWBERRIES AT JANESVILLE, WIS.

Many of the old standard varieties lost nearly all their foliage in the May freezes; this was true of Wood, Warfield, Crescent, Wilson and many others. Most of the kinds sent up new leaves very quickly, but the fruit then growing had become deformed and could not recover; if we had received plenty of rain there would have been a partial crop.

Those kinds that recovered and gave best returns were Lovett, Splendid, Enhance and Parker Earle, of the perfects, and Haverland, Warfield, Crescent and Bubach of the pistillates. This was in field culture, matted rows, where we had about 75 kinds, and in a little plat of six square rods where we had planted 36 kinds (within reach of our water pipes). These were set in May, 1894, and had been trained to the "5-plants in a hill system," each plant being allowed to put out four runners and then kept in hills. With this treatment Sadie and Swindle exceeded all others in quantity of fruit matured, Warfield following close as third. These are all pistillate sorts, and the first two are not profitable in matted rows.

Beder Wood rusts, and probably it will not remain long in the list. Robinson was a failure this year. Shuckless appears like the old Mt. Vernon, and is no acquisition if one can form any opinion in two years of trial. Timbrell is not satisfactory with three years' trial, and Marshall is an entire failure with two years' trial. Cherokee is no good. Dew is worthless. Greenville is not up to promise with three years' trial. Muskingum did better than last year. Gandy has never been profitable; it gives a few nice pickings about mid-summer, but does not hold as late as Warfield, which is one of the earliest. Michel is not worth planting. Rio and Van Deman, both extra early, are often caught by May frosts and ruined. The following after two years' trial are promising: Aroma, Bisel, Cyclone, Leader, Ivanhoe and Tennessee Prolific.

GEO. J. KELLOGG.

BERRY PLANTS.

A berry plant in yielding its fruit, maturing its seed and producing new growth, is much exhausted. In fact, the life of each bud, stem and cane, is given in this effort. The maturity of fruit buds on new canes comes after this exhausting work, and unless good care is continued to develop and perfect the same, the succeeding crop is greatly impaired. The natural moisture, too, is much less at this season, and must be retained in the soil by frequent shallow cultivation. The strong canes must be stimulated by removal of the weak ones, and all surplus growth cut away. Remember, the care given fruit plants this season practically determines the product next, both in quality and quantity. Never allow your interest in the fruit garden to lessen because the fruit is gone. Never neglect that spot from which you should receive more for the labor performed than any other portion of the farm. A fruit plant is as sensitive to good care as stock on the farm or members of the household, and should be treated as well.

Strawberry beds for the family should be made as early as new plants from new beds can be obtained. Prepare for them now. Extra care is necessary for August setting. The good nurseryman will take extra care in digging and shipping plants, packing so they will not heat or roots become dry. When received dip the roots in a thick compost of dirt and manure water and plant them at once. Be particular to have moist earth firmly pressed about the roots. Rake or hoe around plants often. August setting is not recommended for large acreage or careless growers. M. A. THAYER.

SPARTA, WIS.

GARDENING

WILLIAM FALCONER, Editor.

PUBLISHED THE 1ST AND 15TH OF EACH MONTH
— BY —
THE GARDENING COMPANY,
Monon Building, CHICAGO.

Subscription Price, $2 00 a Year—24 Numbers Advertising rates on application.

Entered at Chicago postoffice as second-class matter.

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All communications relating to subscriptions, advertisements and other business matters should be addressed to The Gardening Company, Monon Building, Chicago, and all matters pertaining to the editorial department of the paper should be addressed to the Editor of GARDENING, Glen Cove, N. Y.

GARDENING is gotten up for its readers and in their interest, and it behooves you, one and all, to make it interesting. If it does not exactly suit your case, please write and tell us what you want. It is our desire to help you.

ASK ANY QUESTIONS you please about plants, flowers, fruits, vegetables or other practical gardening matters. We will take pleasure in answering them.

SEND US NOTES of your experience in gardening in any line; tell us of your successes that others may be enlightened and encouraged, and of your failures, perhaps we can help you.

SEND US PHOTOGRAPHS OR SKETCHES of your flowers, gardens, greenhouses, fruits, vegetables, or horticultural appliances that we may have them engraved for GARDENING.

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PRUNING.—Locust borers are hard at work and the trees are full of little broken branches, the result of their depredations; cut them off. There is no practicable help for the locusts against the borers. Also cut out other dead wood in any trees. On account of the copious rains that we have had recently trees, especially young ones, are making an unusually heavy growth, and by reason of their own weight of growing wood and leaves many limbs are bending. As we generally have one or two severe rain and wind storms in late summer or early fall, we had better shorten back these branches or cut them in enough to lighten them, else they may get broken, and the specimen disfigured. Wounds made now, if shaved smooth, heal easy. Paint them with good linseed oil paint, brushing it well in, to exclude air and wet, induce healing, and prevent decay.

TO DECORATE THE BANKS OF A LILY POND.—We went to Clifton, N. J., the other day to see Wm. Tricker & Co.'s pond lilies. The ponds are in a swamp by the side of the public road and have been dug out so as to form irregular pools. Their banks are wide or narrow and thickly planted with perennial plants, shrubs and vines, and little paths wind along them to allow visitors to get up close to the lilies to admire them. The principal furnishing of these banks is thickets of fern, golden rods, wild asters, boneset thoroughwort, iron weed, sweet flag, cat tail flag, Joe pie weed, ground nut (*Apios tuberosa*), blue lobelia, and such other bold swamp plants. The climbing hemp weed (*Mikania scandens*) was also a favorite vine in the thickets. Arrow heads, pickerel weeds and the like grew in the margins of the ponds; and the Carolina azolla and parrot's feather (*Myriophyllum proserpinacoides*) floating in the water had, we were informed, lived there unprotected for years. A year or two ago they made a couple of new ponds of higher ground for the *Victoria regia* and tropical nymphæas, and how to get up a quick growth of bold sheltering plants gave them some concern. So they hitched up a team and repaired to a neighboring swamp and there cut enough deep big sods to line the banks all around the ponds, and hauled them home and planted them. When spring time came the sods began to grow, throwing up the boldest kind of a thicket of wild asters, golden rod, eupatoriums and the like, a most appropriate setting, gay and beautiful. Banana plants, Egyptian paper reed, and other tender plants are also used here and there, but the main dependence is placed upon the wild growth.

THE SWAMP UPLAND FOR PLANTS.—While most plants love moisture in the ground in the summer, and much moisture causes luxuriant growth, these very plants dislike stagnant moisture. We couldn't help noticing how marked was this point at the Clifton lily ponds, where several plants, such as *Arundo Donax* and the trumpet creeper that were growing on the banks or plats between the ponds, were not nearly as vigorous as plants of the same kind grown on moist but well drained upland.

THE BLACK APHIS was giving them a great deal of trouble, infesting the parts of the leaves above water and inaccessible to the fishes. Washing them off with brush or sponge or hosing them off was the only means of getting rid of them; insecticides could not be used on account of the fishes.

HOW ABOUT MOSQUITOS in these ponds? we asked. "We have no trouble at all, they can't breed here," we were informed. "The fishes eat up every wriggling creature." The fishes used are sunfish and perch.

THE SPECIMEN OF THE MAMMOTH TREE OF CALIFORNIA shown on our front page is about twenty years planted, and we should think about 25 or 30 years old from the seed. It is 28 feet 9 inches in height, sharply pyramidal in form and clad with branches from the ground to the tip. The girth of the trunk a foot from the ground is 48½ inches, and unlike that of most other trees the trunk tapers gradually and most regularly from the ground up. Why this specimen has done so well we cannot tell. Professor McEhan, page 338, tells us it is a swamp-loving tree, but this one is on dry sandy land, we must admit, however, that it is the only one out of several that were planted at Dosoris, near together too, that has survived. But its lower branches on the north side are beginning to fail. Where it is growing is a strip of unkempt ground around the barn yard, filled up with locusts and other trees. At the Mount Hope Nurseries, Rochester, N. Y., is a group of seven sequoia trees much larger than the Dosoris one, but they have lost their lower limbs. They are the finest trees we know of in cultivation in the east. Apropos of Prof. Meehan's reference to the great age of the California giants we may say that some authorities claim that some of the larger trees are as much as 4,000 years old, while most all admit they are about 2,000 years. They run in height about 250 feet or a little over and from 25 to 27 feet in diameter; some trees were even bigger than these figures indicate.

EDITORIAL RHUBARB.—The people of Springfield in Massachusetts are real nice folks. So we forgive the editor of *Amateur Gardening* for his editorial article on "Rhubarb Raising for Market" in his last (July 1895) issue, and which had been copied, body and bones, from GARDENING, February 1, 1894, page 153 and 154 and without a shadow of acknowledgement.

THE NOMENCLATURE COMMITTEE of the Society of American Florists desires information as to any cases of misnaming or confusion of names in American decorative plants, as well as any other matters coming within the line of duty of the Committee. Communications should be addressed to the Chairman of the Committee, Professor William Trelease, St. Louis, Mo.

A CURIOUS DEVELOPMENT.—Mrs. Stuart Patterson of Philadelphia sends us a rose sprig with several well developed leaves and a red flower bud at the end, but out of this bud came a notch the sepal and petals from which were arranged at distances of nearly an inch apart along the branch below the blossom bud. The same day a still more curious one of a similar nature was shown to us by Mr. John McElvery of Flatbush, L. I. In this case it was a rose branchlet with no flower bud at all on it, but arranged along it on the internodes between the leaf joints were full-sized well formed bright red flower petals.

THE DOUBLE SWEET PEAS.—What about them? Who has got them? We bought seed of three varieties, sowed them, and have raised from them a nice lot of plants that are now in bloom, but not one blossom in double or even semi-double. Aside from not being double, however, the varieties are true to name. But the failure of the varieties to produce double flowers may be no fault of the introducers, for we must remember how the American Belle acted when she was sent out; at Dosoris at anyrate she absolutely refused to do a strip at all, she had probably been "sent out" too soon, that is before her character had been, by selection and perpetuation, positively fixed.

A HEAD OF GIANT KNOTWEED.—At Mr. John McElvery's at Flatbush, Brooklyn, the other day we noticed a belt of *Polygonum cuspidatum* growing alongside of a part of the fence between his garden and the main street in very rich ground. It was ten feet high, and the stout stems came up together so close a rabbit could hardly run through between them. He doesn't regard it as a pest at all; while it suckers considerably, and would spread out two of three yards if permitted, by pulling out these wandering sprouts a couple of times in spring or early summer he has no further trouble with it. And

when it is in bloom its arching heads bending with their load of white, fleecy, fragrant flowers are a delight to his family and passers by, and heaven for the honey bees.

ARE SWEET PEAS DEGENERATING.—There has been a good deal of cry lately about the cheapness of sweet pea seed, and the ill effects the low prices are apt to have upon the quality of the seed by causing the growers to be less particular in weeding out "rogues" and poor varieties, their object being to produce the greatest quantity of seed at the least possible trouble and expense. In flat contradiction of this reasonable theory, among over thirty varieties of sweet peas now in bloom at Dosoris the cleanest sorts are the common ones we bought in one-quarter and one-half quantities, and the plants of them are as vigorous and their flowers as perfect as of kinds we received as being extra selected. These facts before our eyes are testimony enough that there is too much cry of "wolf."

A "YOUNG MAN'S" MONUMENT.—A "young man" of Indiana "not believing in monuments of stone and desiring to leave a testimonial of regard for the people * * as well as something to perpetuate our name" has "purchased a small tract of land," and given it "to the town of ——, his birthplace, as a monument to himself." It is to be known as his own full name park, and "be used for the pleasure of all." Everybody is invited to plant a tree in this park as a monument to himself, as "the different lodges and societies have been invited to plant trees and ladies are invited to plant rose bushes" in it. And the editor of this journal is asked; "If we send you a half-tone etching of —— —— (the philanthropist himself, also giving his business) and a photo of —— —— park, could you use them with a short sketch of the park in GARDENING?"

No, no, for mercy's sake don't. GARDENING isn't the gullible paper you seem to us to think it is.

TRANSPLANTING EVERGREENS.—If you wish to transplant evergreens such as rhododendrons, kalmias, arbor vitæs, retinosporas, yews, and the like from one part of your grounds to another you can do so from now on, if carefully attended too, with perfect safety. But should the weather be hot or parching dry, or the ground very dry, we should defer the moving till after the first good rain. Transplanted so early as this they make fresh roots readily and take firm hold in the ground before winter. One of the greatest safeguards in preserving the lives of newly planted evergreens is to take a can of water and through a fine rose sprinkle the plants overhead two or three times a day for a fortnight. If firmly planted, and moistened at the root and then mulched and then sprinkled overhead as advised, most every tree is sure to live. If you get the evergreens from the nurseries be sure to dip the roots in a puddle of mud or clay and water before planting the trees. Never allow the roots of an evergreen to be exposed to sunshine, wind, or other drying influence.

The Vegetable Garden.

BOTTOM HEAT—ASPARAGUS BEETLES.

1. A. D. M., Massachusetts, asks: "What low growing cool greenhouse plants and vegetables like bottom heat?"

Ans. We do not recall any cool greenhouse ornamental plant that needs bottom heat. But many soft wooded plants and young ferns recently repotted and when starting into growth would greatly enjoy a bottom heat of 65° or 70° with a top or house temperature of 50° to 55° at night. Hybrid amaryllis love such conditions. In the way of vegetables most everything that is forced likes warmth at the root, for instance asparagus, rhubarb, sea kale, chicory; even lettuces, radishes, spinach and mustard don't object to it providing the air is kept at 50° or 55°.

2. "Asparagas beetle, to fight it?"

Ans. We hand-pick them, that is rub them off between the fingers, squeezing them at same time. A few minutes' work a week will keep them in good check. They have been quite numerous here this season. As we cut off every spear of "grass" up till the end of June there is nothing for them to eat here before that time. But as soon as we stopped cutting the beetles got here and in a few days the larvæ were defoliating the plants. We have tried kerosene emulsion, Paris green in water—potato strength, slug-shot, buhach powder in powder and in water, and fresh air slacked lime dusted on in a dewy morning, but are not yet quite satisfied with results.

THE VEGETABLE GARDEN.

Consult the notes printed in the last issue of GARDENING. Most of them are still applicable. Purslane, ragweed, pigweed, wild orach, crab grass, and other weeds, will, if permitted, soon take possession of the land, and choke or spindle your crop, but so long as you can run a hand or horse cultivator between the rows, keep the land free of weeds and the land mellow.

Just as soon as the early beans or early corn has been gathered root it out, dig or rake the ground, and sow it again, say to beets, turnips, early peas, or late beans; or plant it with late cauliflower, spinach or lettuces. Now is the time to sow peas again. Use the early round ones, as First of All, etc.; marrow peas don't pod well in fall. Get the celery planted as soon as possible, and by keeping it cleaned and well cultivated and watered when necessary encourage it to grow as much as possible.

THE PEAS DON'T DEVELOP.

A. R. C., Orange, N. J., asks: "Why don't my peas develop? The plants are healthy and the pots large, but the peas don't develop."

We get excellent peas up till the middle of July, and in a moist season, as this has been during the first half of July, we have good peas till the 24th or 25th of that month; after that, however, we find it impossible to get good peas, the peas won't develop. Heat and drouth are against them. But up in Vermont and in cool mountainous districts good peas can be grown all summer. If your peas failed to develop in June or early July then there is something amiss; but if the trouble has appeared in or since the second week of July, it is natural and there is no help for it. Mildew also attacks the peas in July, destroying straw and peas in the pods as well, and there is no help. Between this halt in the pea crop and the first pole Lima beans there is a gap of about three weeks which we fill with Henderson's bush Lima beans.

TRUCK GARDEN, BEST SOIL FOR.—C. N. L., Beloit, Wis., writes: "I am thinking of going into the truck garden and small fruit business. Please tell me what is the best soil for celery, onions and cabbage, also for strawberries, blackberries and raspberries." Any good, moderately evel land will do. Don't take poor, thin, dry or hilly ground at any price. Both onions and celery like moist, deep, rich soil; good farm land will grow cabbage and so it will any of the berry crops. Be careful to get land where water can be had easily; but don't get into a swamp or have anything to do with ground that cannot be drained easily. We get our biggest and finest looking strawberries in rich moist land such as onions and celery love, but while good for home use they are too soft to ship.

Mushrooms.

FAILED WITH MUSHROOMS.

A. B. O., writes: "I have had two failures trying to grow mushrooms. I think it must be the temperature of my cellar, and yet it seems just the place for the purpose. It does freeze in one corner of it, but only in intensely cold weather. But temperature ranges usually after November 1, between 35° and 45° and never over 50°. Is this too low? I have the the furnace cellar but that is very dry and dusty. Do you think any use trying again?"

Yes, try again. Mushroom beds should have a surface temperature of 55° to 60°, and the heat of the interior of the bed should be 5° to 10° more than that. Without protecting your beds your cellar is too cold in winter, but you can protect your beds by a heavy coating of straw or hay against any cold that may enter your cellar; the warmth of the manure within the beds will keep up the temperature at the surface under the covering. In the London market gardens, where the mushrooms are grown out of doors all winter in the face of frost and snow and rain and sleet, the ridge-beds are covered against the weather with strawy litter, Russia bass mats and boards, and immense quantities of mushrooms are grown there in that way. It is much easier to grow them in your cellar. Or, it will make gathering the crop easier, if you box up the beds, and put the strawy covering over the boxing. Get the book "Mushrooms: How to grow them" price $1.50, from the publisher of GARDENING, it explains all about this way of growing mushrooms in detail, and the matter is illustrated.

MUSHROOM SPAWN.—W. C. D., Union street, New Bedford, Mass., asks: "Would you kindly recommend a seedsman to me of whom I can get good spawn. Also the quantity I would need for 360 square feet." Every seedsman advertising in GARDENING sells mushroom spawn imported from England. Get 75 or 100 pounds.

THE USE OF COMMON NAMES OF PLANTS.

A natural desire for the use of common names for plants is inherent in us all. Perhaps in no country are they more used than in England. There the people cultivate flowers more freely than elsewhere, and from them have sprung many of the names attached to their household pets. The comparatively limited area of

the country and the universal use of the plants serve to perpetuate and understandingly disseminate any fanciful names. A glance at a compilation of these names is somewhat interesting. The word grass with some descriptive term is applied in four hundred and seventeen cases, and includes the yucca and gladiolus. The term lily is used over fifty times for flowers outside of the genus *Lilium*. The use of the bark in medicine and the arts has given the simple name of Bark Tree to some fifty different species. The resemblance in flower or fruit to an apple has caused that word to be applied in various forms to seventy-three plants, among which we find Love Apple, Hen Apple and Apple Pie. The word ash is associated with seventeen genera outside the genus *Fraxinus*. Under the name beech we find six genera, and the appellation bay tree covers eleven different trees.

The compilation removes some misconceptions that are prevalent, for example the "briar root," out of which pipes are made, is not a briar, but belongs to the heath family. The word "briar" as used in this connection is a corruption of the French word "bruyere," signifying heather. Those who buy dried currants for their puddings get the fruit of the Zante grape vine. *Colocasia esculenta*, which we also know under the name of *Caladium esculentum* and call elephant's ear they sometimes call the bleeding heart. One piece of mullein masquerades under twenty-seven names, the ox eye daisy of the fields has sixteen, and the favorite pansy is known as Call-me-to-you, Fancy, Flamy, Pansey, Garden Gate, Kiss-me, Herb-Trinity, Jump-up-and-kiss-me, Kiss-me-at-the-garden-gate, Love-in-idleness, Pink-of-my-John, Tickle-my-fancy, Hearts-ease and Three-faces-under-a hood. The term "She's a daisy" must be rather indefinite, as it is applied to fourteen genera.

Queer names are numerous and it is hard to conceive what suggested them. Our temperance friends would not like to place in their front yards such plants as Brandy Bottles, Burn-wood, Burn-nose-tree and Carbolic-acid-plant, nor would our legal advisor feel complimented if we presented him with a Bush-lawyer. We might send our physician a Belly-ache-tree, some Bloody Fingers, Nose-Bleed and Fingers-and-Toes, but he would undoubtedly prefer a Fat Hen, Fat Pork, Mutton chop, Goose-and-Gosling and Gooseberry Pie. The household cat is immortalized seventeen times, the least poetical of which is Cat-chop.

We find a Melancholy Gentleman and a Mournful Widow at Loggerheads but by the Grace-of-God, with a chance of Courtship-and-Matrimony. Sally Brown pulled Jim Crow's Nose, while Grim-the-Collier gave a Blue Kiss to Blooming Sally. Blue John ascended the Ladder to Heaven to see the Holy Ghost Flower and came down on the Holy Rope made of Holy Hemp, while The-cats-in-clover watched the Apes-on-horse-back Go-to-bed-at-noon. As for the ladies they were not forgotten. The Lady-in-the-bower could entertain Lady-Birch, Lady Fern, Lady Grass, Lady Poplar and Lady-of-the-Meadow, but would hardly admit the Naked Lady! Before the entertainment she could take the Lady's-ear-drops from the Lady's-Fin-Cushion and with her Lady's Fingers put them on. Standing before a Lady's-Looking-Glass she could arrange her Lady's-Laces in her Lady's Tresses, put on Lady Slippers, Lady's Gloves and Lady's Mantle, but before doing so should remove her Lady's Seal, put on the Lady's Thimble on her Lady's Thumb and mend the Lady's Smock, and when all was over she could rest on Lady's bedstraw. The only common name given the *pelargonium* is the Stork's bill, while in America it is always called a geranium.

A curious instance where the scientific name of one plant has become the common name of another is shown in the Mock-orange. It is often called a syringa, which is the generic name of the lilac, while the mock orange is known botanically as a *Philadelphus*. W. C. Egan.

Highland Park, Ill.

THE BEER PLANT.

In one of your issues some time ago (page 76, Nov. 15, '94) you alluded at some length to the "Beer plant." When I spied the article I was led to hope that my own interests on the subject would be met by a reference to some one from whom the plant could be obtained. When a boy at school I had a supply of this fungus ferment which "we boys" called "beer seed." In its moist condition it looked somewhat like pellets of boiled tapioca, soft and semi-transparent. A few grains dropped into a bottle of molasses-sweetened water flavored with sassafras so charged it with carbonic acid in a few hours that the bottles occasionally burst. Root beer or ginger beer was of very simple manufacture in those days, and one original small "sample" lot of beer seed multiplying itself in the bottles, by enlargement and division soon supplied the town and indeed became "a drug in the market." But since those days I have never heard of it until I came upon your article in Gardening. Can you or some of your readers put me in the way of procuring a sample of the fungus? I desire particularly the species which answers the above description, but any of the others mentioned in Gardening would be welcome for certain experimental purposes for which I desire the plant. W. Hamilton Gibson.

Washington, Conn., June 22, '95.

VENTILATING AN ICE HOUSE.

In your directions for building an ice house page 334, you advise "never let the door be open any longer than is strictly necessary." In the course of my life I have had a great deal of experience with ice houses and all that were shut up tight above the ice melted very rapidly, the more air above the ice, so it is kept dry, the better it keeps. In my young days my father built a large ice house, and dairy from the drip of the ice, with a granary above. It was planked up tight and no air allowed above the ice, and by the middle of August the ice was all gone, though it held four times as much as the old one which had been in the same place. The next season he knocked off the boards all around for two or three feet and latticed it up, and we had ice the next winter when filling time came, in fact the bottom of that ice house was seldom seen after he gave it plenty of air on top. But he was very careful to keep the saw dust well packed down around the sides, and the ice well covered with it. My father-in-law was very particular about keeping the door of his ice house always closed and air excluded and was very saving with his ice to keep it through August, but never succeeded. I have the same ice house now with the ends latticed and only a lattice door, which is generally open, and often had ice to last for the next season by several feet. One fall I remember there was no ice in the county but here. I should advise to A. W. C. give his ice plenty of air on top, if the house is well drained, and the ice kept closely covered with the saw dust, and no rain allowed to beat into it. A little sunshine does not hurt it. It doesn't matter much what sort of a house the ice is kept in. I have seen ice keep well in a hole with pine poles laid down the sides and a steep plank roof with no ends at all, the sunshine and wind both entering at their pleasure, but the ice was always well covered. [The lantern-ventilator that we advised page 334 is similar to that used on barns and open at the sides except for lattice work to exclude rain, and it ventilates the ice house and admits fresh air very freely. The troubles of leaving the door open is the carelessness of people in covering the ice after taking out some or putting things into the house. We have two ice houses at Dosoris, and have excellent success in keeping the ice. But we do appreciate these notes of actual, practical experience, such as our esteemed correspondent has given us. Ed.]

Lucy G. Chrisman.

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June 14, '95. Warren H. Manning.

Actinidia polygama.—E. G. F., New York, asks how old must this Japanese woody vine be before it blooms. Several years judging by the way it acts with us. The plant commonly grown as *polygama* is *arguta*. There was a good deal of fuss made about it some years ago as a new and worthy fruit bearing plant. We have seen it in fruit and eaten of it, but don't care for it.

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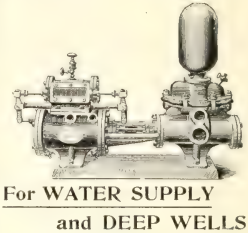

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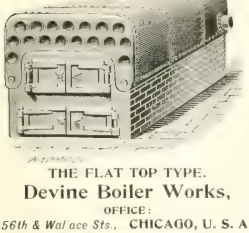

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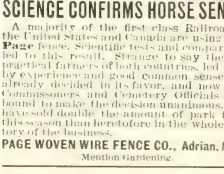

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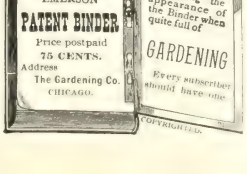

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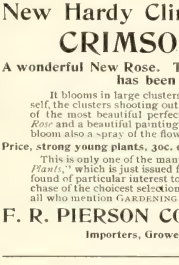

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GARDENING

Vol. III. $2.00 A YEAR 24 NUMBERS CHICAGO, AUGUST 15, 1895. SINGLE COPY 10 CENTS. No. 71.

A LITTLE COTTAGE GARDEN AT MAHWAH N

Landscape Gardening.

A COTTAGE GARDEN.

At Mahwah, N. J., about thirty miles from New York and by the side of the Ramapo Mountains, Mrs. Mayer has one of the loveliest and most interesting little gardens we have ever seen, it is all flowers. Although a lady of vast means, residing in a magnificent mansion in the middle of an estate comprising miles upon miles of territory, all maintained in luxurious fashion, gardening is the passion of her heart. And that she may enjoy it in her own way and its greatest fullness, apart from the decorated grounds of the mansion, she has gone some hundreds of yards beyond, out of sight of the house, and there had built for herself a little old fashioned thatched cottage, and around it has arranged an old fashioned garden. To this retired and beautiful spot every day of the summer while she is is at Mahwah she repairs for rest and recreation. With her own hands she sows the seeds, sets out the plants and cares for them, and great is the variety of her pets.

On the 29th of June last we accepted the kind invitation of Mrs. Mayer to come and see her little cottage garden. It surely was a treat to us. The garden is unique. It is a garden of love and full of loveliness. It is not the retreat of an aged lady nor of an invalid, but the creation and joy of a young and refined woman in the flush of health and strength, and an appreciated and frequented beauty spot by her husband and children.

A little and almost obscure footpath, unkempt except for its trodden line, winds by the woodside and through the fields between the mansion and the cottage garden. This path is for the owner and her happy family and guests who are garden enthusiasts; it is not for society friends who have no interest in the cultivation of flowers.

On right and left of the pathway leading through the field to the garden are spreads of vigorous wild flowers such as golden rods, asters, eupatoriums, etc., and we were glad to be informed they were not enough, that all the finer varieties of these handsome flowers to be found in the neighborhood are to be collected and naturalized there. And stretching beyond are to be planted masses of the most beautiful trees and shrubs obtainable and consistent with the situation.

The cottage, built in old fashioned European style—from ideas suggested by the illustrations in Mr. Robinson's "English Flower Garden"—consists of two rooms, one a sitting room, the other a kitchen, and is used for rest and study. Inside and outside of the windows are shelves for pot plants, and some are always there, and within the house on the table and sideboards are vases of flowers.

Flower borders surround the cottage, and the whole garden is a series of flower beds—oblong squares, curves, etc., and all filled to overflowing with hardy perennials and annuals, roses, clematis, other vines and small shrubs. The garden is enclosed by an upright picket fence, the pickets being of saplings cut in the woods, and loaded with vines and roses. The gates are also of the same kind of pickets, with a vine covered arch to each. Over the cottage front door and leading down into the garden from it is an arbor of clematis, climbing roses, honeysuckle and other vines. And on the outskirts there are tangles of roses, clematis and other beautiful plants left alone in their glory.

The paths are narrower than in fashionable gardens, and having a foundation of stone and surface of gravel they are always dry. They are edged with a variety of plants, not in unbroken lines, but in the more beautiful way, by carpeting plants, as perennial cushion pinks, violets, dwarf irises, moss pink and other dwarf phloxes, evergreen candytuft and the like, in homey liberty and blooming at will.

Perennials of every seasonable variety in unrestricted freedom were in bloom, and while there were masses of Koempfer's irises, pink spiræas, phloxes, delphiniums, gypsophila and the like by themselves, there was no rigidity of arrangement, for they blended out among their neighbors with natural grace. At the cottage door we saw the finest mass of the California mimulus (*M. cardinalis*) we have seen in many a day. Lilies were in beautiful array, notably the happiest clump of *L. Brownii* we have seen in years. Mrs. Mayer has been kind enough to have it photographed for GARDENING, and we hope to use it soon. *Lilium Hansoni* had done well, *superbum* was showing splendidly, and *speciosum* looked fine. Among other favorites were pyrethrum, pæonias, columbines, big, thick-leaved saxifrages, campanulas, carnations, etc.

Besides the perennials, biennials as hollyhocks, foxgloves and Canterbury bells were used in quantity and much esteemed. And a great deal was made of annuals. Not only were they grown a-purpose and planted out as we do with ten-week stocks and China asters, and sown in rows or patches where we wish them to bloom as we do with sweet peas, salpiglossis, scabios and mignonette, but a point was made of encouraging the self-sowing of annuals, and spread most over all the land were poppies, eschscholtzia, mignonette, the little leptosiphons, portulacca, marigolds, four o'clocks, dwarf gypsophila, pansies and many more. And among others we noted the fragrant favorites of our childhood—musk and thyme.

But this was not all, an unseen host had just retired for the season to be gone till next winter and spring, we mean the spring flowering bulbous plants. The ground is alive with them. And so beautiful and satisfactory had they been, narcissi especially, that orders have already been sent for a full set of the finest and newest sorts obtainable, likely to prove hardy here.

Contiguous to the cottage and of similar architecture is a little potting shed or work room, and adjoining it are two small pit greenhouses. Here seeds are sown in pots and flats and seedlings got into good condition for transplanting out of doors; and for summer effect in the greenhouses gloxinias, begonias and the like are raised, and old fashioned plants for the cottage windows

In the edge of the woodland near the cottage a new rhododendron garden has been laid out and planted, a counterpart of one shown in "The English Flower Garden." Near there too the intention is to carpet the woods with primroses and other wild flowers. In one spot Japan anemones have been planted in large numbers, and a place is set apart for spreads of Christmas and Lenten roses (*Helleborus*).

I THINK the general make-up and information the amateur receives from GARDENING far surpasses any other horticultural paper published. G. E. B.

Auburn, N. Y.

The Flower Garden.

FLOWERS IN BLOOM AT EGANDALE, ILL., AUGUST 6, 1895.

The summer hyacinth (*Galtonia*—Syn. *Hyacinthus—candicans*), a bulbous plant from South Africa, has proved hardy here in light, well drained soil, with ordinary winter protection. The bulbs, however, can be lifted and safely wintered in any frost proof cellar. It is suitable for shrubbery or for the center or back of a bed of gladiolus. Leaves are strap shaped and about two feet long. Flowers white, fragrant, bell shaped, and drooping on stiff stems some three feet high. My bulbs have not been disturbed for three years and still bloom well.

The "Stars in Heaven" (*Boltonia latisquama*) is an aster-like plant of charming habit. It grows about four feet [often 6 to 7 feet—ED.] high forming a broad, many branched open head, the terminal of each shoot bearing a composite flower an inch in diameter of a delicate pink, slightly tinged with lavender. As the main stalks are well branched half way from the top, the flowers also appear down in among the wiry branches like so many stars seen through a veil of mist. The principal stems are brittle and require secure staking. Its open spray-like flower branches, the main beauty of the plant are generally crushed into a mess by improper tying. I have tried with success the following method. A hoop three feet in diameter with three legs four feet long, all made of quarter inch round iron, with two bars crossing the hoop like the spokes of a wheel was used. The legs were inserted nearly two feet into the soil and a broom handle firmly driven in at the center to which were tied the cross bars at their junction. This was to stiffen the frame. The plant grew up within the hoop, is well supported, yet has perfect freedom.

David's bush clematis (*Davidiana*), an acquisition from China, forms a dense plant three feet high, bearing in clusters at the axils of the leaves handsome, porcelain blue tubular fragrant flowers. It is the best of the bush clematises.

The white snake-root (*Eupatorium ageratoides*), is useful for cutting or for white in the shrubbery. It is a strong growing plant some three feet high, bearing minute white flowers in terminal clusters.

Montbretia (*Tritonia*) *crocosmiflora* is quite effective in a mass with its iris-like foliage and star-shaped orange scarlet flowers borne on long stems after the manner of gladioli. Plants wintered in a cold frame are fifty per cent better than some left out.

The blackberry lily, catalogued as *Pardanthus chinensis* and lately re-christened *Belamcanda chinensis*, somewhat resembles an iris in foliage and manner of growth. The flower stems rise up some three feet, bearing orange colored lily like flowers, spotted with purple, entitling it to one of its popular names, the leopard flower. The matured seed pods so closely resemble a large blackberry that it is said the birds are deceived.

The crown vetch (*Coronilla varia*) has been blooming for over a month. It is a low semi-creeping plant of light green foliage, producing freely in umbels, small pink and white pea shaped flowers. It is too spreading a plant for the border but in front in the wild garden or in isolated clumps it has a pleasing effect.

The Japanese speedwell, *Veronica longifolia* var. *subsessilis*, is one of the choicest perennials found in any garden. It forms

THE LITTLE POTTING SHED IN THE COTTAGE GARDEN

large clumps of handsome foliage about two feet high, above which are produced long branched spikes of the brightest clearest blue found among flowers. My plants do well in partial shade.

Lady Larpent's lead-wort (*Plumbago Larpentæ*) is just commencing to bloom. It forms a thick mass of foliage eight inches high, which will from now until October be covered with single deep violet colored flowers. It is a good edging plant of easy culture. [But not always reliably hardy.—Ed.]

The hardy garden phloxes are a mass of pleasing color and amply repay the fulfillment of their requirements, i. e. good soil and plenty of moisture.

As the hollyhocks pass out of bloom the other members of the family are falling into line. The rose mallow (*Hibiscus militaris*) is just opening its cup shaped flesh pink flowers. A well grown clump at the back of a border is effective. The swamp rose mallow (*H. moschatos*) is a little later in blooming. Its variety "Crimson eye" is a very showy flower, being pure white with a deep crimson eye. All grow five to six feet high and like moisture. The shrub form of this family *Hibiscus Syriacus* (rose of Sharon) is inclined to be somewhat tender here, and should be planted in rather poor soil and cut back but little in the spring, as a luxuriant growth will surely winter kill.

This is the season when the torch lily, flame flower, or red-hot poker plant, catalogued as *Tritoma*, but known botanically as *Kniphofia* is nearing its prime. Being a native of South Africa and Madagascar they are not hardy, but winter well in a cold frame. They look well planted in among gladioli, having a somewhat similar foliage, and send up their 3 or more feet tall spikes terminated by flame colored racemes of bloom. The flowers are small tubular, and coral red fading to orange. It does best in a light soil.

The smooth yellow false fox glove (*Gerardia quercifolia*) is indigenous, and being partly a root parasite, is difficult to transplant. Seeds scattered in the wild garden has resulted in the establishing of a colony. It is a rather slender plant three feet high, bearing numerous drooping bell flowers in fox glove fashion.

The St. John's worts are represented by the herbaceous *Hypericum Ascyron*, not a very showy plant. *H. aureum*, a shrub from the mountains of Tennessee is perfectly hardy and the handsomest in my collection, except perhaps the hybrid *H. Moserianum*. It forms a dense bush nearly three feet high bearing terminal flowers an inch and a half in diameter, with five petals of a beautiful yellow. The numerous stamens resemble a bunch of floss silk. The upper leaves of the flower stem are set close up to the calyx, thus forming lively green bracts upon which the blooms set, making a charming background. *H. Kalmianum* grows about the same height but has narrower and darker foliage and smaller yellow flowers. *H. prolificum* is a stronger grower than the preceding and is less interesting on account of the numerous decaying flower heads when beyond its prime

Of the lilies in bloom the golden banded lily of Japan is still queen. This species (*Lilium auratum*) cannot be depended upon beyond the first bloom, no matter how well protected it may be. One stalk now before me has thirty-five well developed open flowers with more to come, even while crowded they each expanded six to seven inches. *L. Batemannii* growing three feet high and bearing six to eight semi-cup shaped flowers of a clear apricot color does well in open spaces among the shrubs. W. C. EGAN.

RAISING MOONFLOWER FROM SEED.

H. R. V. Philadelphia, writes: "Having tried a number of times to raise moonflower plants from seed without even getting the satisfaction of seeing the plants get above ground, I am constrained to turn to you for a little assistance. What is the usual time for planting seed? I am told that it is best to take slips from this year's plants for next year. Will you kindly explain the details?"

In raising seed we generally sow in the greenhouse in March or April, potting the seedlings separately, and plant them out late in May. Before sowing we cut through the skin at the narrow end of the seed to enable them to germinate readily. To raise them outside cut through as

mentioned above, and sow out of doors after the middle of May, about the same time as you would Lima beans If sown too early the seeds rot in the ground. True, you could keep slips over winter in the greenhouse or warm window very well, but there is no need of it, seeds germinate so easily and first year seedlings grow so rankly and bloom so profusely that keeping slips over winter is throwing time and energy away. Commercial florists, however, in order to meet their early spring sales, propagate the moonflower from cuttings, keeping several plants over winter for this purpose.

QUESTIONS ABOUT BULBS.

BY C. M. C., WASHINGTON, D. C.

1. "BEDS OF MIXED SCILLA AND SNOWDROP three years old. What should be done with them in the way of lifting and replanting, or should they be left alone, one only being in a fairly floriferous condition last spring?"

Ans. Lift them now and replant them this fall as soon as convenient. But before planting dig the ground quite deep, and open or enrich it with leaf soil, decayed swamp muck or very much rotted manure, don't let the manure be around the bulbs though. Scillas of the *sibirica* section generally do well for years without being transplanted, and so do snowdrops on rich cultivated ground. When they begin to fail, however, it is time to lift and replant them.

2. KAISER KROON TULIPS.—"A fine bed of these that attracted general attention the first year did not do so well the second, about one-half of them reverting to the original state of a plain yellow or plain crimson. They have never been lifted, but well manured. What should be done with them?"

Ans. Lift them at once and keep them out of the ground, cool and dry till October, then replant them into well dug ground in a sheltered place. We find that all varieties of tulips do better if lifted every summer; and it isn't wise to delay lifting till all of the leaves have rotted off, lift when the leaves turn yellowish and while they yet have a fair hold to the bulb. Also, if you let them bear seed when they have done blooming the bulbs will be hurt.

3. OF NARCISSUS POETICUS.—"A fine bed planted in a specially rich soil the first year did splendidly, but the second had the foliage multiplied by about four and the blossoms decreased to a very meagre show. The luxuriousness of the foliage was very striking. What was the matter and what should be done?"

Ans. Lift the bulbs at once and keep them out of the ground, cool and dry till October, then plant them, keeping all the big bulbs by themselves, for every one of them should bloom, and those of lesser size by themselves. *Poeticus* increases considerably and, either in rows or bunches, is apt to get too thick if left undisturbed, hence we advise lifting and replanting them say every third year. Under ordinary circumstances, when they are left undisturbed they are better the second year than they were the first, and frequently better the third than the second. But the moment they show fault up with them.

4. IRIS KŒMPFERI.—"I have a large bed of this that has been very satisfactory. Each 'bulb' this year developed a circle of ten or twelve stocks. Should they be taken up and divided? If so, when?"

Ans. If your ground is good and the plants grow vigorously increasing much at the crown, try to regulate your plantation that you can lift, divide and replant one-half of it every year, leaving the other half untouched for fine flowers. In common soil the plants may stay till the third year before being divided. Do it in early spring.

5. NARCISSUS—VON SION.—"I planted about 400 narcissus, the major part being Von Sion. The first year they did well, but the next being undisturbed were nearly all top and very little bloom. What was the probable cause?"

Ans. We can only repeat that whenever narcissus or other hardy spring-blooming bulbs begin to fail in blooming lift them as soon as they are ripe and keep them cool, dark and dry over summer, then plant them out again in fall. Von Sion is very beautiful the first spring after being planted here if Holland bulbs are used, but the year following the same bulbs are apt to have greenish yellow flowers of no value.

THE FLOWER GARDEN.

Keep everything neat and clean. Cut down spent columbines, delphiniums, and other herbaceous plants that have stopped blooming and gone to seed. Clear away withered leaves, pull out weeds, hoe the ground and rake it tidy. Heliopsis and spider wort often become pestiferous weeds self sowing themselves everywhere; root them out and spare them not. Fill up every empty bit of ground in the borders with plants from the reserve garden. We keep a number of annuals for this purpose, such as Lorenz's gaillardia, cosmos, nasturtiums, chrysanthemums, china asters, alyssum, tobacco, marigolds, petunias, single dahlias, etc. If you have not kept over a reserve stock of such plants, sow a little mignonette and sweet alyssum in such spots or lift part of the over-thick plants in the borders and plant them in the empty places.

Tie up any plants that require it before they fall or break down. *Pyrethrum uliginosum*, Maximilian's and other tall sunflowers, may need it, but instead of bunching all to one stake, use two or three stakes to each clump, tying neatly and firmly, though loos ly. One stake is enough for each dahlia plant.

SEEDS.—Save some of your best delphiniums, foxgloves, gaillardias, columbines and some other perennials and sow them out of doors in a prepared bed or border shading them as you would a celery seed bed. Lots of these seeds will drop on to the ground where the old plants seeded, and the seedlings now come up. Save some of them, and a little later transplant them elsewhere.

PANSIES are now coming up everywhere where old plants bloomed last spring. Save a lot of these seedlings for blooming next winter and spring. Also sow seeds of choice varieties.

GIVE THEM WATER.—Perennial phloxes, mountain fleece, perennial sunflowers, salvias, cannas, and other vigorous plants, should get thorough soakings of water now and again To starve them now is to impair their beauty and usefulness.

BEDDING PLANTS.—Clean off the withered flowers from cannas, and cut off the seeding spikes. Pinch in coleus before it gets too thick, else it will scald and drop its under leaves. The same with iresine. Don't let anything such as verbenas, nasturtiums, petunias, and the like grow out over the grass edging and injure it, rather cut back the encroaching parts. If you have pattern or carpet beds, never let the lines run into each other. Cut off all old flowers of heliotrope, geraniums, etc. Geranium cuttings may now be put in. Put them in in sandy or common soil in a box in a slightly shaded place or in a cold frame.

SALVIAS—ZINNIAS—CHINA ASTERS.

I have a large garden of about an acre. Some of the most satisfactory flowers I have this year is a brilliant bed, 85 by 4 feet, of salvia Clara Bedman. It has attracted much attention and improves in quality as the summer wanes. Another faithful flower, light varieties of which seed I imported from Germany, is the zinnia. I also planted the crimson sort known as Gen. Jacqueminot, obtainable in this country and secured some specimens that are very fine—as rich a crimson as the rose of that name. I have also a large display of fine asters which I hurried and got into bloom (and through blooming last year) before the beetle arrived, a simple device that may not occur to some people. This year they are coming into bloom August 1. Another delight this season was a fine display of Canterbury bells and *Delphinium formosum*. [We began cutting China asters about the middle of July, the seed was sown early in March in the greenhouse. But we also have later plantings—the last sown the middle of June—to give us flowers till October we hope. We treat the blister beetles the same as we do rose bugs, take a wide-mouthed tin as a wash-hand basin, lard pail, or old frying pan, put an inch deep of water into it and as much of kerosene, then go over the asters and shake the beetles into the tin. The kerosene kills them.—ED.] C. M. C.

Washington, D. C.

YUCCA FILAMENTOSA.

J. E. H., Two Rivers, Wis., writes. "I have a bed of forty yuccas that were planted last May, and twelve of them have blossomed this summer. In the bed with them I planted dwarf nasturtiums which have grown rankly, shading the yuccas a good deal. Will they hurt the yuccas? Are yuccas evergreen? As our winters are very long and cold how should I care for the yuccas in winter?"

Yes, the nasturtiums growing over the yuccas will hurt them; if you had sown portulacca there it wouldn't injure them. Yuccas are evergreen On the approach of cold weather mulch the ground about the yuccas a foot deep with dry oak leaves, then set an inverted box or old butter tub or empty nail keg over each plant, or as many plants as it will cover, then add more leaves and some spruce or other branches over all to keep the eaves in place and hold the snow. But, unless you are sure yuccas will survive the winter in your neighborhood better lift half of your plants and keep them over winter in a cool cellar or pit, planting them out in spring.

DOUBLE-FLOWERED SWEET PEAS.

Apropos of remarks on page 346 regarding double sweet peas. The seed planted in my garden this year was not sold as double-flowered. But numbers of blossoms among Emily Henderson and Blushing Beauty produced double hoods These doubles did not pod. Soil, "made land"; eight in hes black slough bottom on sandy ridge. Cultivated two years in celery and truck. Fertilized heavily with horse manure, cow dung and bone meal. Watered copiously. Planted early in March; severe frosts May 20 and later first flowers, on Emily Henderson, June

HYDRANGEA PANICULATA GRANDIFLORA FROM LIFE

10. August 1 six feet tall and freely blooming.

With me the new white Blanche Burpee is no better than Emily Henderson. It is a week to ten days later, not as floriferous; form slightly different but hardly more attractive to my taste: texture not as delicate and silky.

HORACE E. JAMES.

Hammond, Ind., August 1, '95.

WATERING LILIES, DANGERS OF.

In my grounds several *Lilium superbum* are growing indigenously. Last season when buds were about one-third grown I watered copiously—saturated the ground—and every bud blasted. This year I did not water and they bore twelve and sixteen flowers on each stem. In another position I have planted a large clump of *Lilium davuricum* which bloomed freely last season without watering; but this year, when the buds were half grown or so, I turned the hose on them and gave a soaking; every bud was checked, withered and died—not a flower came out. Otherwise the plants made vigorous growth. In both cases the soil is loose sand and well drained. Water can not stand in it and stagnate. HORACE E. JAMES.

Hammond, Ind.

TRAINING SWEET PEAS.

I think my method of training sweet peas is so good that I should like to give it. They are grown in rows running north to south. Put stakes three feet high, two by two, ten feet apart in the row, then run a single wire along them near the top, and another an inch from the bottom, then pass a ball of twine under and over. It has elicited so much favorable comment, and been so inexpensive, easy to make and satisfactory, that I would be glad to have others profit by it, and spare them my experiments.

Detroit. M. F. M.

PLANTS FROM JACKSON, MICH.—A week or two ago a package containing some twigs of fruit trees, also mouse-ear chickweed and creeping speedwell came to us by mail, but no word or letter regarding it has been received. The plum tree twigs are badly affected by scale. Syringe them with strong kerosene emulsion just before they begin to grow in spring, and with a weaker solution after growth commences. They are speckled all over as if they had been sprayed by some ill-prepared solution. The mouse-ear chickweed and creeping speedwell are pestiferous lawn weeds. Take a new steel rake and scratch them out as best you can, then spread a good dressing of fresh loam and well rotted manure—half and half, well mixed together, and made fine—over the scratched places, and sow blue grass and red top grass seed on it. Do this now and roll the ground well. You cannot put on any dressing that will kill out the weeds without killing the grass too. Do all you can to discourage the weeds and encourage the grass, so that the latter may grow up and choke out the former. After the grass begins to grow a thin sprinkling of nitrate of soda will help it, but be careful, for the least thing too much will kill it out.

THE AFRICAN HIBISCUS.—A correspondent sends us leaves and flowers of this annual species (*Hibiscus Africanus*) and eulogizes its beauty as he found it in an old garden where it comes up every year from self-sown seed. It grows 2 to 3 feet high, is much branched and has divided notched leaves and conspicuous yellow flowers with a deep maroon blotch in the center. A good many years ago it used to be a common garden annual, but of late it has fallen into disuse because its flowers are of no use for cutting. Like poppies, portulacca and some other persistent annuals, however, where once it gets a footing and is allowed to ripen and drop its seeds it always comes up the next year. We have never known it to become a pest though.

HARDY CARNATIONS.—My hardy carnations from seed sown last year have been in bloom since the last of May, and gorgeous in their profusion of brilliant bloom, a little bed yielding apparently thousands of flowers E. R.

New Jersey.

Trees and Shrubs.

HYDRANGEA PANICULATA GRANDIFLORA.

In this we have one of the best of all garden shrubs. Some of æsthetic taste claim that its flower heads are coarse and unbecoming, but the popular wave is on its side, in fact we believe it would be voted the most indispensable shrub in our gardens.

The species is a native of the mountains of Northern Japan, where, in Yezo, it often becomes a small tree 25 or 30 feet high. In this country it is cast iron, being hardy in our coldest states, and this is surely a very strong point in its favor But it also thrives admirably in the eastern and middle states, and into the south.

Like most all Japanese plants it likes good ground and lots of moisture, then we may expect to get stout growth and big heads of blossoms. Little heads may be prettier and more refined than large ones, and by indifferent treatment it is easy enough to get them; but the ambitious gardener by close pruning and much feeding is continually striving after big heads, just as by persistent disbudding and feeding he produces the big American Beauty roses, and perfect tea roses that we find at the florist's to-day.

We are indebted to the courtesy of Messrs. Ellwanger & Barry, of Rochester, N. Y., for our illustration. It is from a photograph of a plant in their grounds, and they tell us "there were over 200 flower heads on this plant last year." Now look at it. You see a one-stemmed plant, a picture from life and not of the imagination. Then turn to some book or paper and find the "stock cut" illustration of this shrub and behold one of the ugliest and most falsifying pictures published. A multitude of stems jump up together from one crown in an impossible way, and their shortness, in proportion to their flower-heads, is unnatural and general contour ridiculous. How can any firm, knowing better, use such a monstrosity as the likeness of this popular shrub?

It is grown both as a low-stemmed or dwarf plant and as a high stemmed or standard one, appearing well in both instances. With us it begins to bloom in August and lasts through September; the flowers, before they expand, are greenish, but they open white, and with age assume a rose tint. We have never known them to assume the blue tint so common in the Hortensia varieties The "single" flowered forms coming in before and after *grandiflora*, extend the flowering period from July till October.

TREES AND SHRUBS IN BLOOM AT ROCHESTER, N. Y., AUGUST 7, 1895.

The trying drouth we have had here for three months has been broken during the past two weeks by heavy showers, and vegetation is picking up new life.

The pepper bush (*Clethra alnifolia*) is now in fine bloom; it has upright panicled racemes of fragrant white flowers,

and at this season of the year when flowering shrubs are scarce it is particularly desirable.

The sorrel tree (*Oxydendron arboreum*) has drooping clustered racemes of white flowers. It is a difficult plant to establish, it growing slowly with us, but it is very beautiful and worth a trial.

The chaste shrub (*Vitex Agnus-castus*) is now in fine condition. The flowers vary from dark blue to white, in panicles at the ends of the shoots of the current year's growth. The cut-leaved form from Northern China (*V. incisa*) will be in full bloom in a few days. We mulch both forms heavily in winter with leaves.

The dwarf sumach (*Rhus copallina*) has large yellowish white terminal panicles, and the Chinese Osbeck's sumach, *Rhus semialata*, has immense terminal panicles of white; both are in good bloom.

The rose of Sharon (*Hibiscus Syriacus*) in various colors, single and double, is very conspicuous. The nettle-leaved hydrangea (*H. urticifolia*) is in flower, and the oak-leaved one and *H. arborescens* are barely past yet.

Callicarpa purpurea has small flowers borne in small clusters in the axils of the leaves, but the violet-colored berries which follow are pretty. It is only in open late falls that they make any show here.

The trumpet vine (*Tecoma radicans*) has been in bloom for some time, and quite a few flowers can be seen just now nestling among the leaves of *Rhodotypus kerrioides*, and the rugosa roses are giving us a few flowers along with conspicuous red hips. *Kerria Japonica* has a crop of belated flowers, and *Potentilla fruticosa* continues to produce its buttercup-like flowers in great profusion, and the American wistaria is displaying a few belated clusters. *Clematis Virginiana* (common virgin's bower) is in magnificent bloom.

The coral berry (*Symphoricarpus vulgaris*) is coming into bloom, but the common snow berry and the Western wolf berry have well developed white fruit. The sweet shrub (*Calycanthus Occidentalis*) is still in bloom. High bush cranberry has handsome bright red fruit, the way-faring tree (*Viburnum Lantana*) reddish black fruit, the buckthorns (*Rhamnus catharticus* and *R. lanceolata*) have black fruit, and *R. Frangula* reddish black fruit. The inflated pods of bladder nut and bladder senna are quite pretty in their way. Forms of cotoneaster we have under the names of *nigra*, with deep bluish black fruit, *borealis* with bright crimson fruit and *lucida* with black fruit are all pretty. J. DUNBAR.

AZALEA INDICA ALBA AS A HARDY SHRUB.

A specimen of *Azalea indica alba* has bloomed in my garden for twelve years past; it had grown in a pot for ten years previously. The shrub stands 8 feet high and about 9 feet broad. Its hardiness has been sufficiently tested by 12 Long Island winters, and especially by the rigors of last winter, which cost the plant many of its leaves, but otherwise did no damage. The profuse bloom, about June 1, covers the shrub with a sheet of dazzling whiteness, and the individual flowers are fully twice the size of those bloomed in pots and with heightened perfume. There can be no question that this is the finest outdoor specimen of *Azalea indica alba* to be found on Long Island, or perhaps anywhere in this latitude. This variety is not generally regarded as hardy.

[It is hardy at Dosoris, blooming nicely, but the specimen here is nothing like such a fine plant as Dr. Barstow's, indeed, as the Doctor says, his plant is by far the finest we have seen anywhere in the north.—ED.]

XANTHOCERAS SORBIFOLIA.—I see that your correspondents report very varied success with the seed of the xanthoceras which you so generously distributed last year. For my own share of your bounty I can show ten fine plants from 5 to 12 inches high, and all thrifty.

J. W. BARSTOW.

Sanford Hall, Flushing, N. Y., July 25.

A BLUE-FLOWERED HYDRANGEA ROSEA.

A N. J. correspondent writes; "I have mailed a bloom of this to you. The plant remained out all winter planted under a pear tree. I have never seen a hydrangea flower so blue. Could it have been the shady situation that caused its flowers to assume this blue color? Its normal color is rosy pink, sometimes fading to a pale blue."

The color is as deep a blue as we have ever seen in hydrangeas. But what caused it we don't know. Being out over winter, and the simple shade of the pear tree couldn't have done it, for we have several plants of it Dosoris just now under precisely the same conditions and they are in full bloom and every flower is rose-colored. A dozen or so years ago when we first had *rosea* we looked upon it as a probable species, at anyrate so steadfast did it adhere to the clear pretty rose color of its blossoms that we hoped we had got a hydrangea of that race that wouldn't assume any of the *hortensis* bluing, but before a few years had passed it showed its inconstancy by getting blue-tinted And the blue was a dirty, dead, purplish hue, not at all agreeable. After awhile some had pretty blue flowers, others held to the disagreeable purple, and some to the pure rose, and so they continue. When planted out of doors, in the well kept, the tendency is to rose color; grown in pots there is a leaning to bluish Evidently something in your soil or water induces the blue. But it is a fine hydrangea, hardier than *hortensis*, and much earlier blooming, and although cut down to near the ground with us in winter its crown is hardy and it is sure to bloom.

PURPLE BEECH AND PISSARD'S PLUM TREE.

I planted a purple beech tree in my garden in October, 1892. The following July it seemed dying. A neighbor of horticultural experience told me it would not grow in this vicinity, in fact a nurseryman declined to sell her one, as he knew it could not succeed owing to the hot sun. I at once made a moveable screen of wood like an easel and protected the tree. The following year it was just existing, and in July a strong wind broke off the main branch; on examination it was found weakened by being perforated by a borer which we caught and killed. A *Prunus Pissardii* and red bud also had branches in the borer's possession. Both were severely pruned and washed this spring with a lime wash, and all are now doing well. Had the beech died I would have been convinced that it could not live here. Later, I read in a paper that the *Prunus Pissardii* was especially liable to the borer. M. F. M.

Detroit.

WHITE LILACS NOT BLOOMING.

B., Ky., writes: "I have a white lilac sixteen years old, and another nine years old, and neither has ever had a bloom upon it."

Ans.—The blooming of lilacs is very uncertain. Without a knowledge of their cultural conditions we cannot even suggest treatment that might help them. A cool, open situation, good ground, and abundance of water in June, July and August when they are completing and maturing their wood should lay the foundation for flowers the next year.

ROOT PRUNE OVER VIGOROUS TREES and shrubs, if they are running more to wood and less to flowers or fruit than they ought to, and do it now. The way to do it is this: Draw a circular line on the ground around the butt of the tree, keeping 4, 5, 6 or more feet out from it, according to the size and fullness of the tree, then dig a deep narrow ditch just outside of that line, with the object of severing all the roots that run beyond it, and thus curtail the feeders of the tree, hence lessen its power to make wood. This causes flower buds to form. Fill up the trench at once. The sole object in digging it out is to cut the roots, and this being accomplished there is nothing to gain by keeping it open.

VINE FOR A DERRICK.—For a vine to cover a wind mill derrick, I would suggest the cinnamon vine (*Dioscorea Batatas*). This will grow 40 feet or more and is very fragrant while in bloom, it is, moreover, a very clean vine and never troubled with insects. A. T. C.

Hyde Park, N. Y.

A SECOND CROP OF ROSE ACACIA.—After they had done blooming in the spring we cut back a few bushes, and now they are blooming again with unusual freedom. They bloom a second time anyway every summer, but the cutting back of the branches has added greatly to the floriferousness of the second growth.

THE WHITE ALTHÆA known as Totus albus is a pure white—without any stain in the eye—single flowered variety, and we believe the prettiest of all. It is as hardy and easy to grow as any other.

THE BLUE ALTHÆA has blue, single flowers with a dark eye, but the color isn't a pleasant one at all.

Roses.

ROSES ON THE WOODED ISLAND, JACKSON PARK, CHICAGO.

There have been a very great many more flowers in the World's Fair rose garden this year than ever before. At the close of the Fair after the various exhibitors had withdrawn their plants, the remainder were heeled in for the winter, November being too late to reset them. In the spring of '94 the roses were replanted in beds where they still stand and this year look well established. The soil in the garden is the light, sandy soil found hereabouts, for while the greater part of the fair grounds is made land, the Island received none of the filling because it is a part of the highest sand ridge in Jackson Park. Its native growth of oak trees still stands. The garden now consists of plants that were set out in the spring of '94 in soil that is light and sandy and that has not been enriched since '92.

Early in last December, after the first snow had melted, the roses were turned down to the ground, fastened there securely with wire pins and carefully covered to the depth of six inches with fallen leaves that were held in place by brush, the stalks of plants and similar material. The only exceptions to this treatment were the plants of the climbing

rose that form the hedge enclosing the garden, and the beds of moss roses, of Mme Plantier and of rugosa with its hybrid, Mme. G. Bruant. These were left upright and protected at the roots only with the covering of leaves, and they came through all right excepting the climber. It was killed back to the leafy covering everywhere except on the west side of the garden where the hedge is somewhat protected by a growth of small oaks. The hedge is formed by turning the new wood down along two wires that are stretched on stakes respectively about eighteen inches and two and one-half feet above the ground. The lower branches were protected by the covering of leaves and have bloomed profusely. The upper wood is all dead.

When the roses were uncovered in late spring the wood of certain varieties was green to the tips although the winter was severe, and while there was an unusual amount of snow, the coldest weather occurred when the ground was bare.

While the roses look well and have done well as a whole, there is a marked difference between varieties, some having done especially well and some proven worthless under the conditions named. The one that stands out distinctly as the best all around rose of any color is Mrs. John Laing, and the one that is most unsatisfactory in every way is American Beauty. The last seems quite worthless here as an out of door rose. Next to Mrs. Laing in hardiness, thriftiness and floriferousness comes Marshall P. Wilder with Gen. Jacqueminot a close third. Almost equalling these are Earl of Dufferin and Alfred Colomb. Next in excellence, and all have done well, come the following H. R. varieties, named about in the order of their merit,

Jeannie Dickson,
Baroness Rothschild,
Comtesse de Serenye,
Paul Neyron,
Anne de Diesbach,
John Hopper,
Prince Camille de Rohan,
Fisher Holmes,
Merveille de Lyon,
La Reine,
Mabel Morrison,
Paeonia,
Caroliae d' Arden,
Jean Liabaud.

It will be noticed that the collection is especially rich in bright and deep red roses, that pink flowers are fairly numerous and that white ones are scarce.

The cream of the list of H. R's for use under the conditions found there is as follows:

Deep crimson:
Prince Camille de Rohan,
Earl of Dufferin,
Jean Liabaud.
Crimson:
Gen. Jacqueminot,
Fisher Holmes.
Carmine and vermilion:
Marshall P. Wilder,
Alfred Colomb,
Rose:
Anne de Diesbach,
Paul Neyron,
John Hopper,
La Reine.
Pink:
Mrs. John Laing,
Baroness Rothschild,
Comtesse de Serenye,
Jeannie Dickson.
White:
Merveille de Lyon,
Mabel Morrison.

Of these Mrs. John Laing, as before said, is easily the leader, keeping perfectly under the covering of leaves, blooming well the first of the season (although not as profusely as either Wilder or "Jack"), and showing for a second crop of flowers a fat, healthy bud on every one of numerous thrifty new shoots.

Marshall P. Wilder is also producing a good second crop of splendid flowers, and continuous flowering is a noticeable characteristic of Earl of Dufferin, Jeannie Dickson and Alfred Colomb. Several others are preparing to bloom again but those named give the best promise.

The strongest growing H. R. in the garden is Margaret Dickson, but it is so chary of its lovely flowers that it is a disappointment. It would seem that such thrifty growth might by some method be made to produce flowers. Unless this can be done the variety is of no use here.

The standard trained roses have done fairly well under the same treatment given the others, which includes a thick mulch of lawn clippings in summer.

The Rugosa roses have done splendidly and are very satisfactory, the hybrid, Mme. G. Bruant, being the best bloomer and quite as hardy as the Rugosas proper. These were not turned down and neither were the plants of Mme Plantier nor the moss roses. Their beds were covered with about six inches of leaves held in place by an open covering of longer material just as described in connection with the plants that were pinned to the ground. Of the moss roses Capt. John Ingram, purplish crimson, and Comtesse de Murinais, white, bloomed best, and in the Perpetual Moss class Mme. Salet, light rose, and Blanche Moreau, white, are most satisfactory. In the arrangement of the moss roses the branching Comtesse de Murinais occupies the centre of a bed that is bordered with the more upright, trim plants of Blanche Moreau.

In climbing June roses Pride of Washington is the best, being full of flowers on the living wood left from last year, but it is not hardy except when all of the wood is protected. The plants are all sending out strong vigorous shoots that, if protected this winter, will make the garden far more lovely in June of '96 than it has been this year. Baltimore Belle must be turned to the ground and well protected or it will get winter killed. Queen of the Prairie blooms less well than Pride of Washington and is rather less hardy here.

The Polyantha roses, as well as others of low growth, were mostly smothered to death by a dense growth of verbenas that filled all of the rose beds last year. It made a fine mass of flowers that was charming to look at, but as a summer mulch the verbenas were not a success, for they smothered nearly as many roses as were winter killed. The honeysuckles that were used to edge the beds during World's Fair time have all been removed because they too ran riot through the roses and could not be kept within bounds.

Clothilde Soupert, that has so many good qualities, has not proved hardy, protected like the others it still froze back badly.

Rosa Wichuraiana, the Japanese creeper, wintered well.

The Tea roses suffered the most from the cold. The hardiest and, in fact, the only varieties that did not winter kill badly under their blanket of leaves are Gloire de Dijon (which is far and away the strongest grower of its class in the garden), and Reine Marie Henriette. The first two are climbers with exquisite flowers and there seems to be no reason why northern amateurs, who are willing to take the trouble to lay their roses down for winter, should not have a share of the delightful effects produced by these climbers in southern gardens—notably those of New Orleans, where Reine Marie Henriette in particular is in great favor.

Gloire de Dijon is blooming continuously and is thrifty. The flowers are not as large as those grown under glass but they are, nevertheless, charming in color and very fragrant. The varieties that have proven most unsatisfactory are La France, which got frozen back badly but has thrown up new shoots and promises a good late crop of flowers; Belle of Normandy, that is hardy but does not perfect its flowers; George the IV, that is both hardy and thrifty but gives so few roses that it is worthless here; Her Majesty, which is a strong grower but not hardy and it does not flower well; Francois Treyve that is also vigorous and hardy but fails to perfect its numerous buds, which blight as they begin to open; Francois Levet with the same faults as F. Treyve but which seems to promise a late crop of open flowers, the early buds utterly refusing to unfold; Magna Charta, that is less hardy than many of the others; Margaret Dickson, that is hardy, and more vigorous than any other rose on the grounds but rarely shows a flower; and American Beauty, that winter kills so badly as to be worthless here, and the few that did survive are so shabby and backward that the bed of "Beauties" is a blot on the garden.

F. C. Seavey.

ROSES IN NEBRASKA.

I have experimented more or less during the past ten years of my twenty-three years of residence in Nebraska with roses and flowering shrubs. The article in Gardening of July 1 on the roses in Jackson Park, Chicago, prompts me to testify to the good qualities of the following roses, as they grow here, in Nebraska, about ninety miles west of the Missouri river, and north of the Platte river: Jacqueminot, Baroness Rothschild, Anne de Diesbach. Magna Charta, Souv de Wootton Earl of Dufferin, Sir Garnet Wolseley, Prince C. de Rohan, Marshall P. Wilder, Ulrich Brunner, Captain Christy, Madame Planter, Persian Yellow, Baltimore Belle, Queen of the Prairie and Scotch. The last four are not protected in winter, except with a mulch around their roots. All the others, including some Tea and Bourbon roses, —being planted in a straight row for greater convenience—are mulched with cow manure, not necessarily decayed, to the depth of say three inches, the branches of the roses are then pegged down and leaves thrown over them about four inches deep. On the top of this I place some litter, generally cow manure out of the barn, this is to keep the leaves from blowing away. This work is done about the latter part of November, according to season, then, before the ground freezes hard, I get some fine earth, which does not have to be rich, but should be free from the seeds of weeds, and put it on the top of the rest and the job is complete, and the roses in winter quarters. The following spring, say about April, I draw this protection from around the bushes, gradually, but do not disturb the same any more than is absolutely necessary to give good shape to the surface of the bed, and after cutting back and removing any surplus wood, nothing more is to be done. As we have no winter rains to amount to anything, I find this mode of

protection as near perfect as can be for our climate. My display of roses this season has been beyond my highest expectation, and no catalogue display that I have so far seen has exceeded it. In conclusion let me mention that if every one who wishes to have equal success will buy two-year-old plants from reputable growers (to mention my favorites would be against the rule) he or she will meet with fair success, but they must in addition to this have the love of flowers in their hearts.

I have so far not been able to get a perfect moss rose. WM. WEITZEL.

Nebraska, July 2, '95.

ROSE SLUG.

C. H., Roxbury, Mass., asks: "Can you suggest any treatment for rose bushes which will prevent the leaves being skeletonized like the enclosed sample? Hellebore for the leaf-eating insects, and kerosene emulsion for aphides have been used from time to time with fair success against these pests, but they seem to have no effect against the author of this disfigurement."

This is the work of the rose slug. It is the larvæ of saw fly, about half an inch long, and infests the under sides of the leaves. Just as soon as the rose bushes burst into leaf prepare for this visitor. If you have hydrant water handy hose your rose bushes forcibly on the underside about twice a week, a Rainmaker nozzle is just the thing for this. After hosing, with a powder bellows blow a little fresh hellebore powder on to the bushes and so that it may strike the under side of the leaves. A solution of whale oil soap, and even kerosene emulsion well directed against the under side of the leaves, as well as the upper, will also destroy them.

A FRAGRANT CLIMBING ROSE FOR ONTARIO?

A correspondent asks: "Could you name a fragrant climbing rose that would be hardy on a south wall in Ingersoll, Ontario?"

I don't know of a fragrant hardy rose for the province of Ontario; roses that are hardy here unfortunately are not fragrant. I would try Crimson Rambler, judging from the hardiness of the polyantha roses and the fragrance of Clothilde Soupert, to which class Crimson Rambler belongs. By covering it carefully in winter I believe it will be hardy. All climbing roses should be covered in winter if the best results are to be obtained. A GILCHRIST.

West Toronto Junction, Ont.

The Greenhouse.

THE GREENHOUSE.

While the greenhouses are comparatively empty and before the rush of taking in the plants that have been summered out of doors comes on we should have the structures thoroughly examined and all needed repairs attended to. See that every board of every bench and shelf is perfectly sound and that the cross bars are strong and set fair. Both for utility and good appearance a coat of paint is to be desired. Have the boilers, pipes and valves tested, the ventilating gear tried and made to work properly and shut tightly. The glazing will need to be examined. Take out every broken and loose pane of glass, scrape out the old putty, bed afresh and re-glaze, fixing the glass firmly in place with brads or zinc points. Loose panes of glass are sure to be leaky. If a pane slips down out of place don't shove it up and tack it in place, but take it out, clean out the old putty, use fresh and set in the pane again, tacking it in place. If greenhouse plants are well cleaned from scale, red spider, thrips and mealy bugs now it is a comparatively easy matter to keep them clean all winter, so spare not the sponge or hose. Out of door plants are very deceiving in the matter of mealy bugs; when the plants are set outside these pests usually make for the roots and stay in hiding there till the plants are brought inside in fall, when, on account of more genial quarters, they leave the ground, ascending the tree to its every nook and cranny

Caladiums, alocasias, marantas, anthuriums, dracænas, crotons and other fine leaved plants are now in perfection, and allamandas, clerodendrons, bougainvillea, etc. according to treatment are in bloom.

BULBS.—If you haven't already ordered your bulbs, do so at once. Don't wait for the new fall catalogues, bulbs are the same year after year, with a few insignificant changes for variety's sake. Order from the old catalogues. It is time you had the Bermuda Harrisii lilies you want in bloom before Christmas potted; for later they will do any time before September, and for Easter any time before the end of October. But there is nothing gained by keeping lily bulbs out of the ground a long time. Roman hyacinths and paper white narcissus for early flowers should also be potted at once. Pot or box up some early trumpet narcissi too. All bulbs should be started cool and slowly so as to induce them to make good roots before their leaves appear above ground; hurrying them up is apt to throw them blind.

CALCEOLARIAS.—Prick off seedlings and when they are large enough pot them singly into very small pots; plunge the pots in sand or ashes to keep them from drying out too quickly. Keep the plants in a cool but airy and shaded place, as near to the glass in a cold frame. If you need more plants sow some more seeds now.

CINERARIAS should be treated just like calceolarias except that it is well to start them a little earlier, say in June or July.

CHINESE PRIMROSES may also be kept in a similar place as the above, in fact we find they do well in a cold frame set on the north side of a board fence, or under a lath shading. Obconica primroses we keep in 3 or 4-inch pots in a cold frame in a shady place without any sash over them.

PELARGONIUMS.—The show or Lady Washington sorts have been kept out of doors and rather dry and inactive since they finished blooming in June; in a week or two we will cut them pretty well back and keep them as inactive as possible, housing them before frost comes.

LIBONIAS, SERICOGRAPHIS AND BOUVARDIAS are still in the fields planted out, but we will lift them as soon as possible and pot them, so as to get them well rooted before cold weather sets in.

BEGONIAS love to be outside in summer providing they are shaded from sunshine and are kept moist at the root and rather dry overhead, and by this time of year they are generally big, fat and flourishing. But very soon we are likely to have cool nights and occasional cold wet rains; begonias under such conditions are apt to lose their working roots by rot, then no matter how good looking the foliage may be it soon will suffer, and the plants assume a sorry plight. This teaches us that they should be brought indoors early, say before the middle of September, and before any of these unfavorable conditions arrive. Window plants may be kept on the piazza over night and in stormy weather. Begonias that are planted out should be lifted and potted, kept sheltered in frames or a house and shaded from sunshine, but not coddled at all. As a rule hereabout tuberous begonias have been less satisfactory out of doors than usual, but nothing is brighter as pot plants or planted out in frames and covered with shaded sash tilted up day and night. Save seeds from the best varieties.

CALLAS.—We rest our big flowering bulbs all summer, and plant out the little ones if we need the stock. In the first week in August we shake out the old bulbs, clean them from dead roots and dead skin, scrape out any eaten holes in them, and cut out any decaying parts, then wash them, but all this time are careful not to injure whatever living roots may be attached to them. And we repot the bulbs at once into clean, well drained pots in rich turfy soil, and set them out close together on a bed of coal ashes on the north side of a board fence, giving them no water after potting time, but not saving them at all from rain. There they stay till the middle of or later in September. They soon start into fresh growth, coming slowly and sturdily, and are generally in bloom before Christmas and last till early summer.

OUR FREESIAS had been kept dust dry in their pots all summer, and on a wet day some weeks ago we had them all turned out and the bulbs picked up into boxes. We are now potting off a lot of them for early blooming. We will keep over about two-thirds of the biggest bulbs to be potted up later on. The small and medium sized bulbs if required should all be potted or boxed up at once, and allowed to start into growth early and have a long season, this is conducive to a considerable increase in their size. The pots now filled are set out on a bed of ashes beside the callas, and we shall let them stay there longer, for a few degrees of frost, if their pots are plunged in ashes, etc., won't hurt the tops.

CARNATIONS are generally planted out in summer and lifted in August or September and planted on benches in the greenhouse or potted; of course while there is no danger to them from frost before October or November the merit of early lifting and potting consists in getting the plants well rooted before winter sets in.

CHRYSANTHEMUMS.—Most florists have these already planted out on benches in their greenhouses and well established, tied up to strings or stakes, and the lateral shoots are pinched in to throw the full strength into the end bud. In order to get nice pot plants holding their foliage to the ground we should lift and pot them as soon and carefully as possible, bring them indoors or in a slightly shaded place outside for a few days, and syringe overhead two or three times a day. Flower buds are not visible yet, but lateral shoots are, and if you wish for big flowers these side branches have got to go.

ACHIMENES.—How beautiful these are in summer and easy to grow. Their roots may rest dust dry from October till May, and as they increase very rapidly very few plants are better adapted for amateurs to grow. Shade them from hot sunshine, give them water freely at the root, but sparingly overhead; let them have plenty of room and fresh air and the

GRAVENSTEIN APPLES

support of a few very slender but strong short stakes and a bit of string.

GLOXINIAS are also excellent plants for the amateur, they rest easily all winter, and in spring may be potted up for blooming in summer When they are done flowering they may be gradually dried off and set under a shelf for another season's rest. They are easily raised from seed, and we should so arrange matters to have successions of old plants in bloom up till midsummer; from that time on this year's seedlings should give us the blossoms. We saw a splendid display of gloxinias at Floral Park the other day. The plants were young, from seed this year, and they had been planted six inches apart in common flats, and these set close together on the greenhouse benches. The plants looked healthier than by pot culture and they were full of flowers.

STEVIAS in pots may be left plunged in a bed out of doors as long as there is no danger of frost. As they root very freely they want lots of water, and a little manure water twice a week will help them greatly. If their pots are too small for them to bloom in repot them, using a soil of which one-third is well rotted manure.

EUPATORIUMS may be treated like stevias.

NASTURTIUMS.—Propagate some of the best forms of *Tropæolum Lobbianum* from cuttings for blooming in pots in the window or greenhouse in winter. Cuttings from outdoor plants root freely.

ROSE AND OAK LEAVED GERANIUMS are very desirable for green leaves in winter. Plant out some on a bench as you would carnations or grow a few plants in pots for this purpose. If you haven't any ready strike a lot of cuttings of them, and grow these on; they will make nice little plants before Thanksgiving.

FREESIAS NOT BLOOMING.

E C. B., Ky., writes: 1. "Can you tell me the cause of my freesias not blooming for the past two years. I keep them watered and growing as long as there is a green leaf, then dry them off, letting them stay in the soil until the latter part of August or September. When they are shaken out and the larger bulbs separated from the smaller ones I then repot the larger ones in about equal parts of garden soil, well rotted manure, leaf mold and sand, with a slight sprinkling of wood ashes. The same treatment I have used for years and always with success until now."

Ans. The treatment given seems to be all right. Shake the bulbs out of the pots at once, and keep them out of the ground and dry and as cool as practicable for a month. Separate the big from the little as before, repotting the large ones, then stand the pots out of doors on a layer of coal ashes, against a north facing close fence or elsewhere where they may get shade from hot sunshine and be away from the drip of trees, and don't give them any water except the rain they may get till November. A few degrees of frost won't hurt them.

2. "Name of begonia sent?"

Ans. Begonia argyrostigma.

The Fruit Garden.

ABOUT APPLES.

We have a fine crop of apples this year, and the fruit is clean and nice. Oh, how big, and red, and beautiful the Red Astrachans have been, but they are about over now. Aside from being a splendid eating apple they are equally good for baking, sauce or pies, and next to crabapples we prefer Astrachan for jelly; indeed we make a lot of it every year. For jelly it is better to use the apples before they are dead ripe.

Yellow Transparent, Chenango Strawberry, Early Bough, Primate and Maiden's Blush are fine among the earliest, but the recent rain and wind storms have dashed many of them to the ground. These windfall's are raked up and carted away to the pigs the next day, so that any worms that may be in them may be eaten up and destroyed rather than left on the ground to perfect themselves and increase the evil the following year. Where the crop is so heavy as to weigh down the limbs get props and prop up the branches. Apples are now increasing rapidly in size and weight, and their own heaviness will often break the branches even without the cruel aid of storms. So prop up the trees before the storm comes.

How thick the Fameuse apples hang on the boughs; if we should shake off or pick off half of them, taking the deformed, small and gnarly ones, and leaving the more perfect ones this apple would be nearly twice its normal size.

The Oldenburghs are a lot of striped beauties, the Golden Porters have a tempting memory, the Fall Pippin, unequalled for baking, and the crisp and aromatic Gravensteins are in store for us a-plenty. Russets, Greenings, Baldwins, Wealthy, Swaar, Nonsuch and others we cherish for winter are hardly big or colored enough yet to be very tempting except in the knowledge of something good to come. Our illustration is engraved from a photograph of some Gravenstein apples taken here and gives an excellent likeness of this superb variety, giving crown, base and side views of the fruit.

THE BEST FLAVORED STRAWBERRY.

A. R. C., N. J., writes: What do you think the best flavored strawberry for family use where flavor is considered more than size? I have had the Black Prince, but my plants having run out I do not know where to get any more of that variety.

Flavor is really an undefinable term, because tastes differ What is called mild flavor in a fruit is one which possesses no strong distinctive taste nor odor. The sweetest and most highly perfumed strawberry ever cultivated in this country was known years ago as the Ladies' Fine, a medium sized nearly globular berry of a pale red color, but in the rush for large fruit this variety has probably been lost, and the same has been the fate of many others once noted for their sweetness or what was termed high flavor. Among the more modern sorts I confess that I fail to find much of the saccharine unless it is added on the table in the form of sugar. Of the very large varieties the Sharpless still holds its own for size and mild although not rich or high flavor. The Black Prince is an English variety introduced some forty years ago, and while of excellent flavor it was seldom productive in our hot dry climate.

ANDREW S FULLER.

Ridgewood, N. J.

Orchids.

SOBRALIAS.

We have several species of this easily grown orchid coming into flower. The individual flowers resemble the larger cattleyas and are borne at the tip of long reed like stems, unfolding one at a time. The plant continues to bloom for a long time, though the individual flowers last only about two or three days in perfection. The plants are handsome even when not in bloom. *Sobralia macrantha* has violet-purple flowers 6 inches across; *S. leucoxantha* is a beautiful white flowering species with a lemon yellow lip. Pot them in rough peat and sphagnum (not peat fibre) in large well drained pots. Keep them moderately wet in winter; but in summer give them abundance of water. They like greenhouse temperature and moderate shade.

WM. FITZWILLIAM.

I HAVE NEVER yet had any horticultural paper which I enjoy nearly so much as GARDENING. T. C. W.

Cambridge, N. Y., June, 1895.

GARDENING

WILLIAM FALCONER, Editor.

PUBLISHED THE 1ST AND 15TH OF EACH MONTH
—BY—
THE GARDENING COMPANY,
Monon Building, CHICAGO.

Subscription Price, $2.00 a Year—24 Numbers. Advertising rates on application.

Entered at Chicago postoffice as second-class matter.

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All communications relating to subscriptions, advertisements, and other business matters should be addressed to The Gardening Company, Monon Building, Chicago, and all matters pertaining to the editorial department of the paper should be addressed to the Editor of GARDENING, Glen Cove, N. Y.

GARDENING is gotten up for its readers and in their interest, and it behooves you, one and all, to make it interesting. If it does not exactly suit your case, please write and tell us what you want. It is our desire to help you.

ASK ANY QUESTIONS you please about plants, flowers, fruits, vegetables or other practical gardening matters. We will take pleasure in answering them.

SEND US NOTES of your experience in gardening in any line; tell us of your successes that others may be enlightened and encouraged, and of your failures, perhaps we can help you.

SEND US PHOTOGRAPHS OR SKETCHES of your flowers, gardens, greenhouses, fruits, vegetables, or horticultural appliances that we may have them engraved for GARDENING.

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BLACK BEAUTY CANNAS.—A prominent landscape gardener from Pennsylvania when here the other day, as soon as he saw this canna exclaimed: "Why, what is that? Where did you get it? Of whom can I get it? Now that is something I should like to get for use in subtropical work." We told him it originated in the U. S. Botanical Garden in Washington, and we got it from there. It never was "sent out," but several florists have got a few plants of it and no doubt in a year or so it will be included in their catalogues. It is the darkest leaved canna extant. Its flowers are poor and should be kept cut off, but the plant is bold, 4 to 5 feet high, and has fine persistently dark foliage about the color of the leaves of River's purple beech in June.

"A RED MARECHAL NIEL ROSE," says *Gardening World*, "has been produced in Germany by Dr. Mueller, who crossed Marechal Niel with Gen. Jacqueminot. The habit of the plant is that of the seed parent, but the flowers are red."

PERENNIALS THE LANDSCAPE GARDENERS DON'T WANT are those like Maximilians and orgyalis sunflowers and the like that grow to be so tall and slender that without artificial support they break down or fall over. They prefer plants that will stand up in face of wind or rain.

ARE CACTI AS POPULAR NOW as they were some years ago? One of our largest florists who does a general mail trade, and who for some years pushed the sale of cacti quite hard, says, "It is almost impossible to sell a cactus nowadays." We are sorry for this, for there is beauty and interest in the family, and many of the plants are so easy to grow.

CALIFORNIAN PELARGONIUMS.—We have received the "Report on Seedling Pelargoniums" by a committee of the "California State Floral Society." The seedlings reported on are named Mrs. O. W. Childs, Mrs. L. Strienning, Inocente, Purity, Anita, Katie Ils, Alexander Craw, J. H. Sievers, Mrs. S. P. Hart, Mr. Worthington, F. S. Brush, La Belle, and Miss E. G. Britton.

GILCHRIST'S PERENNIAL ASTER is a white flowered form of our common New England aster, *Aster Novæ Angliæ*, and called *Gilchristii*. It is a wild variety lately discovered by Mr. A. Gilchrist of West Toronto Junction Ontario, who writes us: "It will make a good hardy white flowering plant. Last fall a clump of it in my grounds showed up as good as *Pyrethrum uliginosum*."

HYDRANGEA PANICULATA GRANDIFLORA will be in fine form towards the end of this (August) month. A very pretty "single" form has been in bloom with us since the middle of July; and a late variety, almost the counterpart of the early one, will come into bloom about the time *grandiflora* is nearly past. You want the three of them. Get them and you will have hydrangea flowers from July till October.

TUBEROUS BEGONIAS planted out in beds in the flower garden are not as a rule as great a success this summer about New York as they had been for some years previous. Ever since the latter part of June we have had copious rains, just such weather as one would think these plants would enjoy, but no, while they love plenty of moisture in the ground, and a mulching to keep their roots cool, they dislike being doused overhead.

SIEBOLD'S PLANTAIN LILY (*Funkia Sieboldiana*) is the largest and noblest appearing member of the genus in cultivation, and although not at all a new or rare plant it is scarce in nurseries, and mostly because it is often misnamed there. Strong isolated clumps grow to be 6 feet across, and the leaves, which are glaucous green, have blades 12 to 18 inches long by 9 to 13 inches wide. It has pale lilac flowers in early summer, but they are not showy, and it ripens seeds freely. It is propagated by division or by seeds. A landscape gardener who saw it here the other day said he would use it largely in his plantings if he could only get it, but he has failed to find a stock of it anywhere he has tried. The use of this bold funkia is certainly to be commended. But when he told us that

THE SINGLE FLOWERED HOLLYHOCK was the noblest herbaceous plant grown we refused to coincide with him. He has a perfect right to his opinion though, and certain it is that besides him, Olmstead, and some other of our leading landscape architects use it in most all of the places they lay out and plant.

ONE OF THE MOST GORGEOUS DISPLAYS OF FLOWERS to be found anywhere may now be seen at Floral Park, where a million gladioli are in blossom. Although thousands of spikes from these fields are sent to the New York market every week day the newer and choicer varieties are not cut at all, and there are acres upon acres of them. Floral Park is on Long Island, about 15 miles from New York, and easily reached from New York or Brooklyn, and a hundred acres of flower fields are immediately around the R. R. station, and everyone is welcome to see them.

THE PURPLE LOOSE-STRIFE (*Lythrum Salicaria*) and its finer forms named *superbum* and *roseum* are very showy, vigorous, hardy perennials in bloom in July and August. They seem equally at home in the garden border or naturalized by the side of a ditch. But observe what a difficult plant it is to use with other subjects; its mass of rose-purple spikes 3 to 4 feet high, bright and showy in themselves harmonize with scarcely anything else except white. We have a lot of it, and the summer hyacinth (*H. candicans*) growing together and the combination is really pleasing, and enhanced by a green back ground. It is useful only for garden decoration, for cutflowers its color is objectionable. We find the same hue in some petunias and Drummond phlox, but it isn't a desirable one in either.

THE DOUBLE GOLDEN RUDBECKIA.—Some months ago we called our readers' attention to the fact that a very beautiful full-double flowered rudbeckia had been secured and was in the propagator's hands. In this month's *Horticultural Trade Journal* we read "A large, double-flowering, gold n-yellow rudbeckia will be a leading plant novelty next year." We are glad of it, for it is a good thing and more elegant and beautiful than the double flowered sunflower (*Helianthus multiflorus fl. pl.*). We got a little plant of it last winter, and in spring planted it out in the garden in good soil; it is now 6 feet high, much branched, the branches inclining upward, and in bloom. We hail it with delight as being one of the most distinct and beautiful, large growing, hardy perennials that have been introduced for years.

THE ANNUAL VINCA (*Vinca rosea*) is something that isn't made as much of as might be done with advantage. There are three varieties, namely, the type, which has rose purple flowers, one with pure white flowers, and another having white flowers with a red eye. Except in the color of their flowers all are identical, and the one is as easily raised as the other. They are of neat bushy habit, 18 inches or so high, and bloom uninterruptedly from June till frost. They are fine for cutting for table flowers, and in the beds have not got the formal appearance that bedding plants generally have. We sow them early in spring—say February in a warm greenhouse, for coming as they do from Madagascar they like warmth. They ripen seeds abundantly with us and selfsown seedlings come up freely in June where the old plants were grown, but they are too late to do much good. Better raise them indoors and early.

NEWMAN'S CONEFLOWER (*Rudbeckia speciosa* or as it is sometimes named *Newmani*) is now in perfection, and the best of all the low-growing coneflowers. It grows about 2 feet high, sometimes more, and forms a bushy mass of nicely built, orange-yellow, rather flat open flowers with very dark maroon centers. If you wish to have this showy perennial in fine form give it rich moist land and an open situation; in a dry border in summer it gets burned out. At Dosoris it won't even hold its own in the same border with delphiniums, phloxes, veronicas, tall rudbeckias, and the average run of perennials; it must have moisture or it will die out. But we can not wonder at this when we note that it is a surface-rooting plant. It is quite hardy. In spring it may be lifted and torn apart into many pieces, and all of these if planted will grow and make fine plants. It is also easily increased from seed.

SWEET SCABIOS.—How beautiful it is now, and useful for cutting. It is an annual, a native of southwestern Europe, and a highly esteemed garden plant. The common type grows about 3 feet high, the dwarf form about half that size or a little over. The flowers of both are equally varied in color, running from the darkest to the palest purple, also white, cherry, and even yellow. If sown early in spring in a greenhouse, window or frame and planted out in May it begins to bloom in July, and continues in flower more or less till frost. Really, it is a biennial, and in mild parts, say where the winters are short and the frost is no more than 15° in coldest weather it survives the winter and blooms early the next year; but it is not nearly hardy at New York. Save seed of the finest varieties for next year's crop. When the present flush of flowers is about over and the plants are setting seed freely cut over all these old flower heads to encourage a fresh supply.

TRITOMAS, or flame flower, or torch lily, or fiery poker by all of which names they are known, and botanically by the name *Kniphofia*, are at their best from the middle of July till the end of August, with a good many straggling blossoms later. They are capital garden plants, bold and showy, and their spikes fine for cutting for hall and other large vases. We use Kœmpfer's iris leaves with them, as their own are not stiff enough. They like good ground and plenty room. On well drained ground under a heavy mulch of dry oak leaves they winter very well here; but as a precaution we also lift a lot of clumps in November, cut their leaves off, and put them in close together in a deep cold frame over winter. A cool cellar would do as well. In spring we divide the clumps into four or more pieces before planting them out. This is better than planting the full clumps, even if we have to throw away the increase. They are also easily raised from seed, seedlings blooming the second year, and occasionally the first season.

A VIGOROUS TREE GROWTH NEXT YEAR.—Because of the copious rains we have had for the last eight or nine weeks trees and shrubs have made a heavy growth, and unusually fine thick foliage; all this portends an extraordinary vigorous growth next spring. Prepare for it now. With a little regulating of the growth, shortening in excessive shoots, cutting out thin spindly ones that are being choked by others, and giving the trees a well balanced symmetrical form we lay the foundation for an even growth and handsome shape next year. The effect of a wet summer on the next year's growth was very markedly shown at Dosoris in the case of *Pinus Lambertiana*, the gigantic sugar pine of the Pacific Coast ranges. Like most of the Pacific Slope conifers it isn't happy in the East. The Dosoris specimen then 8 or 9 feet high, and maybe 15 years old, beyond refusing to make any growth that signified, looked fairly well. That wet summer came, but the tree didn't grow much more than it did the previous year; the following year, however, it shot up two feet at one bound; and the summers since the —except that of last year—being fairly moist, it has continued to make a fine annual growth. This year's growth, however, is quite short, and because the summer of last year was quite dry.

A RARE CLUB MOSS.

We send you by mail a specimen of a most peculiar form of the *Lycopodium clavatum*, in which all the fertile portions are prolonged into delicate, erect, sterile branches, twelve to eighteen inches high and waving gracefully in the wind. It is exceedingly rare and difficult to secure, having never been reported from any other locality, and being found here only in a single small patch a few feet across on of the highest ridges of the Taconic mountains. The locality is so distant and obscure that we have ourselves seen it but two or three times, but are confident from the old stems observed that the plant has always been true to its peculiarity. It grows on the north exposure of a bare mountain top near the summit among stunted and alpine forms with a quantity of the normal *L. clavatum*, but no intermediate forms have ever been discovered. It seems to have long been a fixed variation, reproducing, of course by division only. The locality was discovered by us on Berry's mountain, between four and five miles north of Lebanon Springs at an elevation of over 2,000 feet on August 18, 1893. At that time the patch was not over a rod across and it has since been very much reduced in size by mountain fires. [A very distinct, striking and elegant form that we have never seen before.—ED.]

WM. H. HARRISON & SONS.
Lebanon Springs, N. Y.

The Vegetable Garden.

THE VEGETABLE GARDEN.

For two months past the rains have been abundant and vegetables have made a rank and quick growth, and unfortunately weeds have kept pace with them.

GLOBE ARTICHOKES are plentiful but poorer in quality than they were a week or two ago. Cut back to the ground the old flower stems.

ASPARAGUS. Run the cultivator between the rows and hand-pull the big weeds. Strip off the larvæ of the beetle.

LIMAS of all kinds, pole and dwarf, are now in season. Keep them picked clean if you want them to bear long. But if you wish to save some for winter use or for seed stop picking from a row or a few poles and let them ripen; seeds secured now are plumper, cleaner and better than those gathered at the end of the season.

SNAP BEANS are in great plenty. They are a seven weeks' crop now. We will make a sowing about the 20th inst., and another a week or ten days later, in a warm sheltered place, three rows two feet apart together, so that should frost be likely to come before the beans are gathered we can cover them easily with movable cold frames and sash, or canvas, and save them. In this way we always have snap beans into November.

BEETS for winter have been sown and are up and fit for thinning. Upon good and clean cultivation and early thinning we depend for quick growth and tender bulbs, and unless we attend to this matter many of our late sown beets won't get big enough to use before the first of November.

BRUSSELS SPROUTS have made strong leafy growth, but there is no fear of them being too early and bursting; the flabby or worthless sprouts may break early, but as they are of no use except to feed to the cows the sooner they show themselves and get pulled out the better for their neighbors. This vegetable doesn't need a loose, soft soil, on the contrary, if you go along the rows and tread the soil firm with the feet it will help the sprouts by checking the leafy growth and starting firm buds.

CAULIFLOWER is much the same, the softer the ground the more leafy the stocks, the firmer the harder the heads. Cauliflower that we sowed a month ago we are now transplanting into ground emptied of early potatoes. What doesn't heart of it before frost sets in we shall lift, strip a little, and heel in close in a cold frame, where it ought all to heart before Christmas.

CABBAGE.—All we can do with it now is to keep it clean and well cultivated.

CARROTS.—The sowings for winter use made last month are up and thinned. Keep them clean, well hoed and thin to make them root quickly and be tender.

CELERY.—Is all planted out. But if planting isn't finished yet don't stop, for we can safely transplant celery no matter whether it is 3 inches or 18 inches high. Keep it well worked and clean, and don't spare the water. A fast and succulent growth is what we want in celery.

CORN.—The sowing is over for a season. As soon as the ears have been picked from a row out with it and plant Scotch kale, endive or lettuces there, or sow spinach or radish in part of the ground.

CUCUMBERS.—Pick for pickling as fast as they are large enough. About this time the plants are apt to become much infested with lice, so that by the first of September their bearing is greatly injured or destroyed. Get some fresh tobacco stems and spread a thin mulching of them under the vines now, adding a little more once a week, and the plants will be kept nice and clean.

MELONS.—After the end of this month the vines will begin to die off and expose the fruit to the sunshine, but so late as this there is no preventive

EGG PLANTS are now in perfection, and so are peppers. Keep the mature fruit picked off that the younger ones may be induced to swell up quick and tender.

ENDIVE.—Transplant large patches of it for fall and early winter use. It takes a longer time to mature than do lettuces. Tie up two-thirds grown plants.

KALE.—We sowed a lot a month ago, and are now planting it out wherever there is a vacant likely spot; our largest lot was planted in the drills from which the early potatoes had been dug.

LETTUCES.—Sow some more of the summer bearting varieties like Salamander; they should all heart before the end of October. Transplant from previous sowing now and again as a little bit of ground becomes vacant.

OKRA.—Keep it picked clean to induce it to continue to bloom and pod.

ONIONS.—The recent wet weather has kept the onions greener than usual, and

they have grown to an uncommon large size. The maggots were very bad in spring, so much so that we didn't expect to have much of a crop left, but we lifted the young plants where they were thick and transplanted them, and these as well as those that were left in the seed rows have made remarkably large bulbs. The tops are beginning to fall over, and in a few weeks they will be ripe enough for harvesting. We are going to plant strawberries after the onions. In curing the onions don't leave them out for long exposed to the hot sunshine, as it greens the skin, especially of white ones.

PARSLEY.—Our winter parsley sowed last month in a cold frame is up nicely and thinned, and by the time frost sets in we expect it will be large enough for picking. If a frame is too much for you to carry over winter and a boxful will be enough, lift the roots now, shorten them a little and shorten the tops too, and transplant into the boxes. By the time frost comes they should be nice, well-rooted, well-leaved plants.

PEAS.—Between the 1st and 20th of August we make two or three sowings of early round peas and get them in fair condition before frost. Very few of the wrinkled marrow peas are of any use here for fall sowing.

PARSNIPS, SALSIFY AND SCORZONERA.—All that we can do with them is to keep them clean and well cultivated and pull out any that are running to flower.

SPINACH.—Be sure you have a piece of empty ground in store for winter spinach, but that we don't need to sow till September. To keep up a succession from now on sow a little once a fortnight in moist good ground. Dry or sandy land is a poor place for spinach in summer.

POTATOES.—After the stems of the potatoes die off altogether of course growth of the tubers ceases, and as they do no more good in the ground we may as well lift them and store them past in barrels set in some dark cool place. Have some long holes cut in the staves of the barrels to admit air; if kept too close the tubers are sure to spoil. Late potatoes can stay in the ground for some time yet. We have sown winter turnips and fall peas and planted Scotch kale in the ground emptied of early potatoes.

TOMATOES are making a great growth and bearing well. But it is well to thin out some of the young growth and shorten back some others so as to give the young fruits a better chance to ripen up. Don't thin out too much at once though, else the sun may scald the fruit.

TURNIPS for winter were sown a week ago, and are now up and needing thinning. By timely thinning and good cultivation yellow or white turnips sown as late as August 15 give us nice roots before November.

LETTUCES IN SUMMER.

I note with surprise that in speaking of the best varieties of lettuce for summer (page 328) you do not mention Hanson or any of the Cos varieties. The latter with me, even when advertised as self closing, always require tying. When this is done they are excellent.

Amherst, Mass. A. D. MORSE.

In answer to the above, as we cannot have the pleasure of showing you the lettuces growing, we will open our note book and quote from it. The notes were taken by us on the spot, July 10. Garden patch, good moist land, cool bottom. The seeds of the following varieties were sown May 11 in short rows, and the plants when big enough to handle were transplanted into rows 18 inches apart to stay there to mature.

1. Thorburn's Market Gardener's Private Stock—Yellowish green, somewhat crumply, Salamander type, well headed but not hard. None has bolted. Been using it since a week. The best of all and most tender.

2. Big Boston—Large, yellowish green, somewhat crumply, larger than 1; none has bolted; heartiug, but not hard; quality tender. A very fine lettuce.

3. Perfected Salamander—Color and appearance like 1, but a little more open than it; quality tender. Put it second on list.

4. Yellow-seeded Butler—Not unlike the preceding three; fit for use some days ago; doesn't heart solidly; a few have bolted, but the majority have kept well. Quite tender.

5. Grosse Paresseuse—Large, flattish shape, pale green, doesn't heart well; a few have bolted, but not many. No good for this time of year.

6. Deacon—Pale green, gathers to a head, but not hard; not one has bolted. A nice appearing lettuce and worth growing, every head being a useable one. But it isn't tender.

7. Golden Ball (from U. S. Ag. Dept.)—Can see no difference between it and Deacon (6).

8. Perfect Gem—Dark green, smooth leaves; gathers to a head; in the style of Deacon, but more solidly and compactly gathered together. Heart yellow. Fairly good quality. Very even; not one has bolted. A very desirable lettuce.

9. Early Paris Market—All have bolted. A fine early lettuce but no good for summer.

10. Boston Market—Somewhat coarser than 9. All have bolted. No good for summer.

11. Golden Queen—A nice, compact, small lettuce, good for early, but worthless for midsummer; all have bolted.

12. Mignonette—A small, crinkly-leaved, deep green, bronze tinged lettuce forming a hard yellow head. For early it would be good. As most of it has bolted we would not use it for summer. Quality a little bitter. Its deep green outside color detracts from its attractiveness.

13. Black-seeded Simpson—Large, pale yellowish green; well gathered together but not hearted; quite even; inner leaves tender and of good quality. Very few have bolted.

14. Early Curled Simpson—A little darker than 13, otherwise much like it, perhaps has gathered into a better head. None has bolted. Of fine quality.

15. Hanson—Large, pale green, crimpy fringed edges, gathers to a soft leafy head. None has bolted. Inside of heart quite tender. A good lettuce.

16. Improved Hanson—If anything a little flabbier than the plain Hanson (15), and all on the eve of bolting. Less inclined to heart than the other.

17. Denver Market—Pale green, quite crinkly, gathering to a leafy head. None bolted. All a little sun scalded on edges. Of good quality.

18. Iceberg—Pale green, wavy, crinkly, crimped but not so deeply as Hanson, gathers to a loose head. Inner heart leaves of good quality and not bitter. Sunburned a little. Very few bolting. A good but not very attractive lettuce.

19. New York—Large, dark green, leafy and somewhat flabby, not hearting very well, and many beginning to bolt. Earlier sowings gave much more solid heads.

20. Trianon Cos—Tall, close gathered leaves, but not hard, needs tying together; quality good and not bitter. None bolted. Has done remarkably well.

Conclusions—Golden Queen, Boston Market and Early Paris Market are no use for summer work. Grosse Paresseuse is too big and coarse. Among cabbage lettuces we would grow Market Gardener's Stock, Yellow-seeded Butler, Perfect Gem and Deacon; and among loose leafy hearted lettuces Hanson, also Cos in ground as cool as this, but not in light soil.

Insects.

A PUGNACIOUS CATERPILLAR.

I send you by this mail a worm that is not only large, but the first I ever saw of its kind here. It had deliberately marched across a nine foot porch up into a six foot tall fuchsia and was slaying the leaves more like a young colt than a worm. He was rather pugnacious and objected to being captured. E. O. N.

Tracy City, Tenn.

The caterpillar sent for examination is that of *Thyreus Abbottii*, one of the Sphinx or humming bird moths—large insects that fly at twilight, as large or larger than the humming-bird, and take their food in the same manner on poised, rapidly vibrating wings. The full-grown caterpiller, although about three inches long, is not repulsive in appearance, as it has a beautifully marked glossy eye like spot near its hinder end, in place of the curved horn that usually indicates the Sphinx larvæ. But if disturbed by handling or even by a gentle poke of a stick, it at once becomes belligerent, so far as is necessary for its own protection. Bending its ends together it suddenly releases them, throwing itself to the other side, repeating this operation as often as it deems expedient. These movements, to render them the more alarming, are accompanied with crackling, crepitating sounds. It illustrates one of the many and varied methods given to the animal kingdom for their protection from their natural enemies, and in this case, peculiarly effective for the purpose. No one but an entomologist would dare to take the caterpillar in his hand, and doubtless many birds and insects are repelled by its remarkable movements and voice.

J. A. LINTNER.

Keene Valley, N. Y., July 31, 1895.

AN INSECT ATTACK ON MAPLES.

Novice, Wisconsin, writes: "For the past two summers some kind of an insect or worm has attacked the tops of my cut-leaf maples, causing the center shoots to fall over and wither. Can you prescribe a remedy?"

I do not recall an insect attack corresponding to the above. If the borer or the girdler, or whatever it may be, were sent for examination it could probably be named and a remedy pointed out. Possibly specimens of the impaired tips might serve for identification of the depredator.

J. A. LINTNER.

BLISTER BEETLES.

A New Jersey correspondent asks: "How can I rid my China asters of the black bugs which appear when the asters begin to flower, and often destroy them

[CONTINUED ON PAGE 366.]

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entirely, eating all the full grown flowers and even the buds? Helleborc has no effect whatever upon them."

Ans. The black beetles attacking the China asters are without doubt the common black blister beetles, and the best way to ge. rid of them is to either catch them in a sweep net, such as used by entomologists, or shake off into shallow pans in which a little water and kerosene oil is placed as a bath. Poisons scattered over the flowers ruins them for further use, and rarely affects the insects. These beetles come from the field, where they usually feed on the wild solidagos, and only occasionally invade the flower garden. Only once or twice in thirty years have my asters been attacked, although this blister beetle is always to be found in the fields in greater or less abundance.

A. S FULLER.

AN INSECT GALL.

E. C. B., Georgetown, Ky., writes: "I enclose in a tin box a sample of something I found on a sweetbrier. At first I thought it was growing from the bush, but on closer inspection found it was not. A month ago it appeared like tiny green burrs, now they have turned brown, and on breaking them I find a small green worm What are they and remedy?"

Ans. The little brown objects, smaller than peas, and thickly beset with sharp bristles are the galls made by a species of gall fly. I cannot give its name or lifehistory while in the mountains away from library, but it has been described and figured by Walsh—Riley, in one of the volumes of the *American Entomologist*. This particular gall is not of frequent occurrence, and therefore no remedy is needed for them. Should they at any time become abundant, they may be cut off and burned before the contained fly has matured and emerged.

J. A. LINTNER.

Keene Valley, N. Y., July 31, 1895.

THE FIGEATER BEETLE (*Allorhina nitida*)—Some one has sent us (to the Chicago office) one of these beetles in a little paper box, but no letter or other word has come with it to say whence or why it came or from whom. It is a large bettle nearly an inch long, and in form not unlike a May bug; its wing cases are velvety green with creamy colored edges. It is very common from New Jersey southward, but not common in the north. Harris says "no remedy has been suggested for these insects other than collecting and destroying them." In July last year they appeared at Dosoris suddenly and in great numbers, and in a day or two disappeared as suddenly, except a few stragglers that we found here and there among the trees. On the 3d of July, this year, they came again just as suddenly, but in fewer numbers, and remained longer.

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W. H. K., Pittsburg, Pa, writes: "I have read your book on raising mushrooms and through it all saw nothing about raising them in a coal mine; as I am thinking of trying to raise them in a coal mine please give me some light on the subject."

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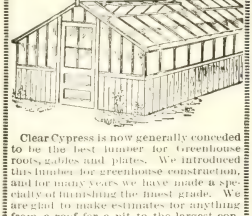

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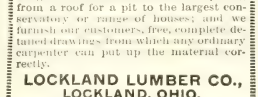

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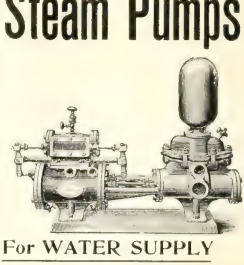

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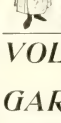

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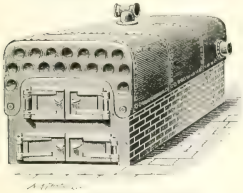

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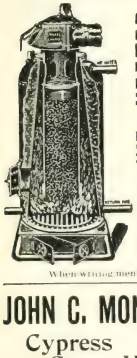

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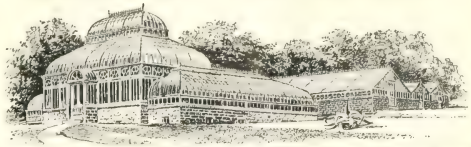

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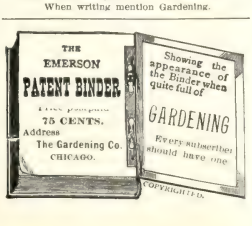

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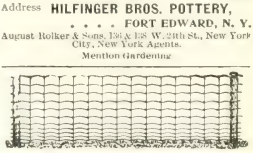

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GARDENING

Vol. III. $2.00 A YEAR 24 NUMBERS. CHICAGO, SEPTEMBER 1, 1895. SINGLE COPY 10 CENTS. No. 72.

EGANDALE HIGHLAND PARK ILL. THE COUNTRY HOME OF MR. W. C. EGAN OF CHICAGO.

THE LOWER PICTURE SHOWING THE LAWN IS TAKEN FROM THE INTERIOR OF HOUSE PORCH AND FRAMED BY THE VINE, AKEBIA QUINATA.

Landscape Gardening.

HOW I MADE MY GARDEN; SIX YEARS AGO IT WAS WILD WOODLAND.

The experience of an amateur in converting a piece of uncouth virgin ground, as he was ignorant of the first principles of landscape effects, may be of assistance to others who desire to be the designers and creators of their own country seats. Faults there may be, yet, and criticisms of professionals in order, still the encomiums of visitors show that at least something has been accomplished. The place is six years old in one sense and but three in another, that is, three years were lost by following wrong principles. The native trees were mainly second growth, rising from old stumps left when the wood chopper was monarch of all he surveyed. These were left here and there all over the ground.

Of course I must have a rockery, and it must be near the center, so all could see it. So one was built, and my man and myself prided ourselves that no castellated tower was ever built with as much precise symmetry, but as I remember it now it seems to have been like a mammoth cheese box, lacking the flavor. When all was done I was very proud of the results, and had "my lawn" photographed. I sent one of the photographs to Mr. A. S. Fuller, who had been very kind to me in matters of advice in floricultural matters. He mildly and gently wrote back "Take those long legged trees away; they belong to the pasture, not to a small lawn." That was the first eye opener I had. It suddenly dawned upon me that a tree clothed to the ground with verdure was a beautiful object. He said nothing about the cheese box, for he knew I built it with loving care and did not want to hurt my feelings. Next fall out came the long legged trees, but the cheese box, the apple of my eye, remained.

A selection of ornamental trees and shrubs was obtained, and the following spring they were planted here and there and anywhere. Where I saw an open space in went a tree, acting upon the same principle that prompted the Irishman's advice, "when you see a head hit it." When done it would have made a splendid pattern for an old fashioned bed quilt. I had to stay in nights, for I could not walk over the lawn after dark without stumbling against a tree or shrub. And my man, after cutting the lawn, couldn't walk straight for a week; dodging some object became instinctive.

As I looked over my place I wondered if the granter gave me all the land the deed called for. I seemed to have no ground, and what I did have seemed "spotty." Something was wrong; what was it? where could I find out? I wanted to paddle my own canoe, but I was in strange waters, and lost. Then I purchased books on the subject, and GARDENING luckily entered the field, and has ever since been a great factor in guiding my course. I studied examples illustrated, and saw many of my errors. I noticed one main feature in landscape work, viz., open up in the center and mass at the sides. I did so, and I seemed to have twice the sized lawn I did before; in fact the village authorities coincided with me, for they increased my taxes.

Traveling in California one winter I noticed an outcrop of rock on a green hill side, in which some flowering shrubs were growing. I thought of my cheese box at home and compared it with nature's rockery, so out came mine, and a more natural one was built at the head of a side spur of the ravine.

I had read that one secret of good landscape work was to create agreeable surprises. Don't show all you have at one glance; keep up a constant chain of "Oh, I didn't see that before." Nature had done a great deal for me; she had bordered my place on nearly three sides with a heavily wooded ravine, some eighty feet deep. The steep banks were densely clothed with those flowers and shrubs that love the retirement and quiet of an unpeopled woods, and that resent the heavy foot of man. How to preserve them was my first thought. Winding steps were cut in the steep bank and sodded, leading to a walk parallel to the upper edge, and situated about half way down. All occupants of my place are forbidden to go up or down the ravine except when using this walk. Consequently all the natural undergrowth of flowers and shrubs is preserved, and in a moment one can pass from the cultivated lawn to the wild, natural wooded ravine. This ravine, with its occasional short spurs penetrating the tableland, gives opportunities for surprises. Almost hidden beds of ferns planted in masses are suddenly seen when walking along the edge. Rustic bridges crossing the small ravines are sunken rather than raised, so that you almost have to hunt for them. Odd looking thatched summer houses, behind a mass of shrubbery, are not seen until within a few feet of them. All these make what John Thorpe once said to a friend of mine regarding this place, "It is the largest small place I ever saw."

Mass your trees and shrubs at the sides, forming bays and promontories, and if your lawn is small mass heavily at the last promontory in view, so that the eye in following the green lawn cannot see the side margins of the bay beyond (see Colorado blue spruce in picture). Your imagination will enlarge the actual conditions. Preserve or make a broken sky line. The tall trees seen in the picture to the right materially help the sky line. Have your shrubbery belts in undulating lines. Plant hardy perennials among them and in masses, never less than half a dozen plants, unless very large growing. Don't repeat the same flower again where both groups can be seen at once. Try to have each bed or series of beds contain such plants that at some point you will have blooms at all seasons, and be careful that the colors don't quarrel with each other. Study nature, where she pleases you, try to copy her, study the outer fringe of the Wooded Island at the World's Fair, that most admirable piece of landscape work. Study the most excellent plans illustrated in GARDENING and designed by Mr. J. W. Elliott. Notice that he does not place the house in the center of the lot and thus cut the lawn in two, but places it at one side, and in this way gets more expanse of lawn. Notice that he opens in the center and masses at the sides.

Don't buy large trees from an overcrowded nursery; they are apt to be long legged. Buy small bushy stock; it will grow fast enough under good care, and the pleasure in seeing the plants thrive will prolong your life long enough to see them mature. Mr. W. R. Smith of the U. S. Botanical Gardens at Washington raised nearly all the handsome street trees in use there from seed, and he was old enough to vote twice when he started them. Don't buy of the ordinary traveling tree peddler, who will plant and guarantee them to live. He and Geo. Washington were never related. Don't bank on the gorgeous lithographic colored plates he carries. Trust to the actual reproductions from nature that appear in GARDENING, and above all don't plant more trees than you will and can take care of. A small place well kept has more charms than a large untidy one.

NOW FOR THE ILLUSTRATIONS.—The house stands on a partial terrace, made necessary on account of the sloping ground, and where the camera stood the surface is some four feet lower than the ground at the base of the porch, thus making the roof look somewhat "squatty." The photo is one of a yearly series which Mrs. Egan takes merely to illustrate progress of growth of vine, and is a nearer view than that illustrated in GARDENING, December 15, 1892. The position of the canna bed had been changed, it being more to one side. The tall tree to the left is a native white oak, one of the few good ones found on the place. Immediately in front of the porch steps, and outside a walk that runs parallel to the porch are a pair of George Peabody golden arbor-vitæs. Directly over the canna bed and on the terrace is a *Pinus Mugho*, dwarf mountain pine. At the corner of the terrace is a splendid specimen of our native spreading juniper. The vine mainly used on the porch is the *Akebia quinata*, now five years planted; it is trained on iron rods. At each side of the porch steps is the golden netted honeysuckle, while between the pillars various forms of the large flowered clematis are trained. The view of a portion of the lawn was taken from the interior of the porch, and through the right hand corner arch, as seen in the house picture, and is the first one taken from that position. I imagine that one showing more of the lawn to the left would be more effective. The tall trees seen at the right are native oaks left for sky line effect. They are near the edge of the ravine. Massed in front of them—to hide a rustic summer house—is a group of *Prunus Pissardii*, the purple plum. The low shrub at lower right hand corner is the golden hop (*Ptelia trifoliata aurea*) standing out in the lawn. In front of the purple plums are some fifty foxgloves. The border to the first point projecting into the lawn is *Sedum spectabile*, the showy Japanese stone crop. Back of them are perenial phloxes. Then comes in succession a castor oil plant, *Eulalia Japonica stricta*, large rhododendron and a Colorado blue spruce. The rear border of the bay beyond is the ravine trees. The prominent dark shrub on the lawn is the common red cedar of the woods, but a very handsome specimen. Back of it is the rockery, with a *Salix vitellina Britzensis* at its left, and sheared that vines may trail over it. At the extreme left and a little nearer is the new American weeping willow. W. C. EGAN.

As a lesson in landscape gardening we reprint this illustration from GARDENING, page 305, June 15, 1893. It is a view of part of the lawn as Mr. Egan first planted it, with its naked stemmed trees retained, and young trees and shrubs dotted all over it. When he sent us the new picture the other day he wrote: "This is the lawn about which you asked me 'Why are so many things stuck around upon your lawns?' Where are they now?" They are where they ought to be—banished—and we are sure everyone who looks upon the two pictures will admit the great improvement in the arrangement and planting of to day over what it was three years ago. This a valuable lesson—an actual fact, and we thank our esteemed friend for

THE LAWN AT EGANDALE IN '92

the opportunity of showing it to our readers.

The Flower Garden.

LAWN AND FLOWER GARDEN QUERIES.

L. C. L. J., New York, asks:

1. CRAB-GRASS.—"Is the so-called crab-grass an annual, and will the preventing it seeding itself be of any service in exterminating it? It is, however, very hard to do this, as the lawn mower passes over the flat lying, seed bearing branches without cutting them. I thought a good top dressing of cotton seed meal last spring might make the soil too rich for it, but my lawn seems thicker than ever with it."

Ans. Yes, it is an annual. Preventing it seeding would certainly tend to its extermination, but this is hard to do. A little later, say end of September and October, many of its seed laden, wiry, brownish stems hug the ground, hardly raising their heads to within the reach of the mower and scatter seed. One cannot make the soil too rich for it, judging by the rankness of its growth on top of our manure pile, but in rich land it grows so rank as to be more easily caught by the mower or scythe than on poor soil. In dry summer weather when other grasses are mostly exhausted the crab-grass comes up thickly, grows and spreads and chokes out the perennial grasses.

2. GREEN MOULD ON SOIL.—"Can you suggest the cause and a preventive of green mould on soil? This forms quickly in some parts of my garden even in open beds exposed to much sunlight. I cannot think it is due to defective drainage, as the worst infested bed is a raised and terraced one."

Ans. Over-wet ill-drained land is apt to be that way; also another kind on impoverished, thin land. Scrape off the green mould with a long, sharp toothed steel rake (a 14 or 16-tined new one) and rake it off, then apply a heavy coating of compost consisting of one-half rotted manure and one-half fresh loam, and sow some seed at once on these bare spots.

3. INSECTS ON LILIES.—"Is it common for lilies to be infested (only on under side of leaf) with a flat, light yellow species of louse with a dark brown spot in the middle of back, and what is the insect?"

Ans. Such insects are not at all uncommon to lilies. Please send us some that we may submit them to Dr. Lintner, our state entomologist. A heavy hosing dislodges them, then dust the plant with fresh tobacco powder, and hose it off in a day or two.

4. JAPANESE MORNING GLORIES.—"What is the reason the extensively vaunted Japanese morning glories lack all variegation in leaf? They have full exposure to sun."

Ans. You cannot have a very choice strain. You ought to see them at Dosoris! Their leaves are marbled and blotched and many of them are almost self yellows. We send you some by mail to whet your appetite for a feast next year. And their flowers! They are brilliant, beautiful, lovely and largely in a variety of coloring uncommon among ordinary morning glories. Superb in the morning, but shut up and past by the early forenoon. We got ours from L. W. Goodell, Pansy Park, Dwight, Mass. If you start them early a north facing or faintly shaded spot we regard as a better place for them than a full-sun exposure.

5. NICOTIANA COLOSSEA.—"And why does not *Nicotiana colossea* behave as the catalogues say it ought to, by having the young leaves purple, and the older ones green with a purple midrib? It certainly is a grand and noble plant as I have it in a mass, very effective, subject to no insect pests, requiring no staking, and standing storms and winds exceptionally well; but really it ought to follow the rules laid down for it in all the truthful catalogues."

Ans. The catalogues say so because the original technical descriptions said so, see GARDENING, December 15, '92, page 102. But no doubt your refractory plants are true to name, even if they won't adopt the central red rib. Ours are like yours, the red or purple of the mid-ribs is so slight as to be almost unnoticeable.

KEMPFER'S IRISES.—"The above in the way of woes and tribulations, but the remembrance and anticipation of delights past and to come are a sufficient recompense. For instance, my Kempfer's irises have never been so magnificent in color and size as this year, when I surrounded them with a wide strip of galvanized iron, flooding them with water, thus keeping them growing in a sort of a pond."

A BED OF HARDY LILIES.

G. C. P., Newark, N. Y., writes: "I am desirous of making up a large bed of lilies to include as wide a range of color and time of flowering as possible. Kindly advise what varieties I should include in such a collection. Our climate here is quite severe; the temperature sometimes goes as low as 15 or 20 degrees below zero during the winter. Should like it to include only varieties which could be left out during the winter, if possible, but, if this would make the number too limited, please mention those that would succeed all right if taken up every fall."

While several lilies are sure to do well with you, as regards a large variety it must be a matter of experiment. Your rigorous winters signify but little, for you can mulch the lily bed deep and well enough to exclude frost, no matter how severe it may be. As regards the hardier lilies, it doesn't matter whether the ground freezes about the bulbs or not; they seem to live all right. But please remember freezing does no lily any good, but it may injure many of them very severely, so to the best of your ability exclude frost from your lily bed; this can be done by mulching. The following are good kinds, and as long as they remain free from disease should do well with you; they are given in their order of blooming, taken from our own diary: *Liliums tenuifolium, davuricum, pulchellum, parvum, Scovitzianum, umbellatum, Hansoni, rubescens, atrosanguineum* (var. of *elegans*), *candidum, Parryi, canadense, Grayi, Humboldtii, testaceum, Brownii, longiflorum, pardalinum, auratum, superbum, tigrinum, speciosum, Leichtlinii, Maximowiczii* and *Wallacei*. Also see article by Mr. F. H. Horsford, page 259, May 15 last, and the one by Mr. C. H. Allen, page 304, June 15, '92.

AURATUM LILIES.

F. C. C., Bath, Maine, writes: "In reply to your question, page 343, as to whether we ever had lily disease. I would like to describe the appearance of our auratums. We grew them for five years all right, and supposing the insect, if there, would make his presence manifest by the second year, concluded they were free and transplanted them to a bed prepared by digging out the soil to a depth of three feet and replacing with a liberal quantity of dressing mixed with the soil, the drainage being all right. We covered the bulbs with sand. The next year, 1894, the lilies did nicely and we purchased new bulbs, planting them in the same way beside the others. They all budded well, but before maturing the blooms some of the stocks commenced having yellow spots on the leaves. One died outright, and recently others have turned yellow in both lots and died. Is this the disease? And if so is it not safer to raise auratum bulbs from seed? How long does it take to get blooming bulbs from seed, and how is it best to care for them during the first winter?"

Ans. The diagnosis points strongly to disease. But don't despair. It is seldom that all of the bulbs are killed out by it. It often happens, though, that the year after our auratums attain their greatest strength and floral perfection they begin to fail. Raising them from seed is a laudable purpose. Sow the seed in a north or

east facing cold frame in fall and cover it up with leaves or litter enough over winter to exclude frost; remove the covering in spring and replace with lath shading. The seeds should germinate in spring. While a few may bloom the second year it will be the third year before many of them come into flower, and the fourth year before we can expect much from them. Home-grown plants from seed, however, take the disease as well as imported bulbs. We have raised hundreds upon hundreds from seed and when they were between three and five years old lost them from disease. At that rate are they worth bothering with? Indeed they are.

JACOBEAN LILY.

(*Sprekelia formosissima*).

S. N.W., Strasburg, Pa., writes: 1. "A few years ago I obtained fifty selected bulbs of these, and planted the same early in the spring in good garden soil, they grew nicely but only three or four bloomed. In the fall the bulbs were lifted, dried off, placed in dry soil in a box, and left in a house cellar free from frost, over winter. In the following spring they were planted, this time with the tops more out of the ground than before, but only a few bloomed. What should I do with them another year?"

Ans. As soon as frost nips the leaves lift the bulbs in the fall, take them inside and let them dry. Keep them over winter dry and in a paper or bag made of sacking, and lay them aside where they won't be kept too warm or there is no fear of them musting and rotting—a shallow box will also do very well for them—and where frost cannot reach them. When the ground is dry and mellow enough in spring for gladioli to be planted, set out your Jacobean lilies in an open, warm situation. Don't plant them in shady or moist ground; aim at getting a vigorous growth early in the year and well ripened bulbs in fall. In this way they seem to flower very well.

2. ERYTHRINA CRISTA-GALLI DOESN'T BLOOM.—"I obtained a large 3-year old plant of this and set it out in the open border. It grew nicely but did not bloom. In the fall the plant was lifted, placed in a box, kept in the cellar over winter, and again last spring planted in the open border, but as before it has shown no signs of blooming. Can I get it to bloom?"

Ans. Keep them in good growth all summer. Before frost comes lift them, letting what earth that may stick to their roots, cut back the shoots to near the stout stock, then store them dry on a moist cellar floor or in a box away from frost and draughts, also hot furnace heat. Keep them much as you would a dahlia, but don't wound the stock or roots attached to it, and don't dry them too much. Wait till the ground is mellow and warm in spring before planting them out. They ought to bloom. Be sure to cut them down when you lift them.

INSECTS ON SWEET PEA ROOTS.

W. H. F., Cleveland, Ohio, writes: "My sweet peas came up nicely this spring and gave promise of many blossoms, but when about a foot or eighteen inches high many of them began to turn yellow and looked as though hot water had been poured on them. I find that each stalk so dried is covered just below the ground with numerous small red insects something the shape of the green louse. What can I do for this trouble?"

If they belong to the green louse or aphis family tobacco will destroy them. Apply it early as a mulching to the peas and it will act as a preventive; a good soaking of tobacco water should destroy the insects, but it should be repeated at intervals of a couple of days for a week or so.

PLATYCODON GRANDIFLORUM, A FREAK OF.

I have just read the remarks on page 343 relating to *Platycodon grandiflorum* and am prompted to note a freak in my garden. Last year I received from a firm in Pennsylvania two good dormant roots of *Platycodon grandiflorum*, one labeled white, the other blue. They bloomed freely that season, but neither was white, both were blue. Though disappointed because the two colors were not represented I was satisfied, for they did well, bloomed profusely and were fine specimens. This spring I transplanted them to another location across the garden. They are in bloom again. One is a deep clear blue, all "self" flowers; but the neighbor plant has blue flowers, pure white flowers, flowers with some petals blue and some white, others with petals parti-colored blue and white, and again other flowers clouded white on blue ground. Still I have no white *Platycodon grandiflorum*. A mulch of coarse stable litter applied in November brought them safely through last winter without the protection of a cold frame.

Hammond, Ind. HORACE E. JAMES.

THE PHLOXES' PAGEANT.

With midsummer and the statelier flowers of August and September come the tall growing perennial phloxes, among the most brilliant of the multicolored pageants of the floral year. Perhaps the azalea, which like the phlox is indigenous to North America, may supply some hues as gorgeous and varied as the latter; but apart from the azalea, which is very much shorter in its blossoming period and not nearly so hardy, the phlox is doubtless the finest, showiest and most satisfactory among summer flowers. The rose with all its sweetness and all its insect enemies passes like a tale that is told—the phlox succeeds it, to rejoice in the estival sun and prolong the blossoming season to a gorgeous maturity. It is true it possesses no orange, yellow and pure salmon tones; but, on the other hand, it contributes most exquisite mauve, lavender, purple and variegated tints that both the rose and the azalea lack; and this in endless profusion and variety. Its odor is delicate and delicious—a haunting nutty aroma peculiar to it alone. Its easy culture and hardiness, moreover, combined with its intrinsic beauty and extended period of bloom entitle it to a first rank among the flowers of the summer season.

Such at any rate is the dictum of Mr. George Ellwanger; and few will dispute the veteran Rochester horticulturist, floriculturist, pomologist and founder of the celebrated Mount Hope Nurseries, in whose company we recently sauntered along the broad "Grass Walk," one of the most attractive features of these nurseries. There may exist as beautiful tracts as the home grounds of this college of horticulture, where fruits, flowers, shrubs, specimen trees, wide reaches of lawn and well kept driveways and hedges form a feature of the scene, but one must certainly travel far to find the equal of this rus in urbe which might have been conceived by a Marvell or an Evelyn in which to luxuriate throughout the seasons, and drive away ennui. Here in these "home grounds" countless varieties of fruits, flowers, shrubs and trees are cradled, tested, nurtured and experimented with before being sent out. Here, too, are orchards of innumerable varieties of fruits in bearing, and collections of deciduous and coniferous specimen trees and shrubs, with large plantations of roses, bulbs and perennial plants. A broad walk of smoothly shaven sward gradually ascending a gentle slope forms a main division of the grounds, on either side of which perennial flowers are cultivated.

Treading upon this green carpet, with the first crickets already chanting their autumnal chorus, we noticed in the distance a row of hollyhocks, like a file of soldiery, still wearing their gaily colored caps, though their uniforms had faded; some large flower beds blue with later flowering bee larkspurs, the great cream colored panicles of the plume poppy and beds of auratum, lancifolium and tiger lilies. The double hemerocallis was in flower, last of its species; tall growing *Heliantheæ* were just coming into golden bloom; and among plants of ornamental foliage the native *Erianthus Ravennæ* and *Eulalia Japonica* and its varieties were conspicuous. Here and there an occasional rose lingered to tell of June and whisper of the flight of time.

But these and quantities of other flowers that "had faded and gone," or that were in blossom, or were yet to appear, were all merely secondary to the flower of the season. For no phalanx of hollyhocks or host of pæonias, no ranks of rhododendrons and azaleas, nor rose gardens of Gulistan or iris fields of Japan might contribute such a dazzling blaze of color or fan such varied hues into flame as the splendor shed by the great trusses of *Phlox decussata* that light this grassy way. Here are white phloxes and red phloxes, pink phloxes and rose phloxes, purple phloxes and vermilion phloxes, self colors and variegated colors, phloxes with dark eyes and phloxes with light eyes, brunettes and blondes—a turmoil of many hued petals that charge the air with their odor and steep the landscape with their color.

Of these an enormous bed of the variety Lothair with a pure white and a delicate rose variety flanking it as a foil was perhaps the most conspicuous. Its catalogued description—"rich salmon color, crimson eye, large flower and spreading spike," gives but a poor idea of its beauty, especially when grown en masse as the phlox should be. Such varieties, however, as Flambeau, Wm. Robinson, Caran d'Ache, Louis Chate, Oberon, Reve d'Or, l'Avenir, and some others among the reds and roses, are perhaps equally effective, though on account of the enormous mass of the variety in question it seemed the most gorgeous of all. Among the many varieties in blossom the following were especially worthy of note:

DARWIN.—Large, perfect flowers; reddish violet.

FRANCOIS COPPEE.—Large, creamy white flower, with a carmine rose center; tall.

GAMBETTA.—Rose; vivid red eye; tall.

L'AVENIR.—Salmon red; tall.

LA VAGUE.—Silvery rose.

LOTHAIR.—Rich salmon color; crimson eye; large flower and spreading spike.

MADAME AUDRY.—Crimson purple.

MADAME LECHURVAL.—Silvery rose, crimson eye.

OBERON.—Vivid coppery rose.

PHOCEON.—Lilac rose, with carmine eye; large panicles and large flowers.

PREMIER MINISTRE.—Rosy white, center deep rose.

QUEEN.—Pure white; medium height.

REVE D'OR.—Brilliant cerise salmon; cerise eye; tall.

A TRUSS OF HARDY PHLOX

RICHARD WALLACE.—White, with violet center; very large flower; tall.

VIERGE MARIE.—Pure white; very large, and of a beautiful waxy texture; tall.

NEW VARIETIES.

AMAZONE.—Flowers large, perfect form, creamy white.

AVALANCHE.—Dwarf. Flowers medium size, creamy white.

BELVIDERE.—Plant very dwarf; carmine rose.

BURNOUF.—Flowers small; dark red, center purple.

CARAN D'ACHE.—Large beautiful flower; carmine rose, center violet rose.

EPOPEE.—Dwarf. Large p rfect flowers; clear violet marbled rose.

FLAMBEAU.—Large flower; very lively brick orange, large center, blood velvet.

GROSCLAUDE.—Large flower; rich deep red, cherry eye.

HENRI MURGER.—Flow. rs very large; pure white, center large carmine.

IRIS.—Flowers very large; bluish violet, large blue center.

LOUIS CHATE.—Brilliant scarlet.

NEPTUNE.—Mauve; salmon tinted; rose eye.

PLUTON.—Large panicles; flowers round; deep fuchsia red.

SELECTION.—Large mauve flowers, with large white center.

STENDHAL.—Large flower; coppery rose; very large, rich cherry center.

WM. ROBINSON.—Flowers very large; violet; pale salmon rose center.

The phlox does not figure in the flowers of the "Winter's Tale" for the reason that it was unknown in Shakspeare's time. Neither had the cunning of the hybridizer evolved the splendid forms that exist to-day, or Tennyson must have included it among the flowers specified in the garden of "Maud."

This flower, whose development it should be recollected is due to the European hybridizers, who are also to be credited with the evolution of the azalea, is distinctly American. From the species *P. paniculata* and its varieties *acuminata*, *decussata* and *pyramidalis*, as well as from the lower growing species *P. maculata*, indigenous to the Middle and Western States, have been produced the rare and exquisite varieties under present cultivation. It is also asserted that some of the most brilliant of the dwarfer sorts are the result of crosses between the perennial and annual species.

Perfectly hardy, the phlox is easily cultivated in most soils. Its only insect enemies are the grub of the May or June bug and the wire worm, which sometimes are destructive to the roots. In unfavorable soils and seasons some varieties are liable to mildew, this being more especially the case with certain of the whites. Good soil is required to grow the phlox successfully, and partial shade and an occasional thorough soaking during dry hot weather do much to maintain the health of the plant. By pinching the shoots in June and again in July the flowering may be retarded, although this will tell against the size of the trusses. The finest trusses are produced by young plants raised from cuttings. Some varieties continue to flourish for years, forming huge plants and annually producing fine heads of bloom. Others deteriorate after the third year, when they should be divided and transplanted, though it may be observed that a transplanted plant is apt to be disappointing. Still conditions vary greatly, and some varieties that deteriorate after the third season in one climate continue to luxuriate in another. The flower lover will be best governed by his own failures and successes. Experientia docet is a precept that holds good with phloxes as with other things, and which can be no better illustrated in gardening than by the great bed of the variety Lothair in the Mount Hope Nurseries that from every truss and petal flares the derivative name of the phlox—a "torch," a "flame." MONROE.

Rochester, N. Y., August 8, 1895.

CHINA ASTER ROOT LICE.

S. W. A., Lake Geneva, Wis., writes: "My China asters slowly fade away. When pulled up many have insects on the tap root that look like those one finds on rose leaves."

No doubt they are the blue aphis or China aster root lice, a widespread and destructive pest. Send to a cigar factory or seed store for a bundle of *fresh* (be sure they are fresh, if they aren't they are worth'ess) tobacco stems, and mulch the aster beds two to three inches deep with these, then water them so as to carry the pungent liquid down to the roots. That is for prevention and partial cure. Steep a lot of stems in a tub of water over night till the liquid is so dark that at six inches deep you cannot see a white plate at the bottom; now pour enough of this liquid at the root of the asters till it soaks down to the lowest root. Repeat this two days after, and say once a week after that. That should kill the lice. A half inch layer of tobacco powder under the leaves about the neck of the plants and well watered into the ground is also killing to the insects. Clean plants can be kept clean, but it is not an easy matter to recuperate an enervated China aster. While we buy tobacco stems in large quantity for about ½ a cent a pound in small quantity they will cost 2, 3 or more cents a pound; on the other hand some small factories in villages having no market for tobacco refuse are sometimes glad to have one take it away.

HARDY PINKS, WHEN TO DIVIDE THEM.

H. C. B., New York, writes: "Our border is about 150 feet long and is edged with hardy pinks such as the Snow, Abbotsford and Her Majesty. I wish to extend this bed, and as the clumps of pinks are quite large I would like to divide them and finish the work in season to order others to fill out with provided any are needed. Will you please advise me how soon it will be safe to make these divisions and transplant."

Lift, divide and replant them at once, the sooner the better so that they may have a good chance to make fresh roots and get a hold of the soil before frost com s. But don't divide them into such small pieces as you would do in spring. Water them liberally and as often as needed. And in winter mulch them lightly, not because they are tender but to help prevent the frost heaving them out of the ground.

A YELLOW CANNA.

E. F. C., New Haven, Conn., writes: "We send to you by this mail a specimen of canna seedling. The clearness of its color is unique with us."

The petals are of a clear golden yellow without any spot whatever, but the stamens, filament and style are deeply tinged with red. As a flower the petals are far too narrow to render it of any value, and as regards its clear yellow color there are other cannas just as clear and that show no red whatever in the stamens, filament or throat. Two of these are now in bloom at Dosoris. But no pure yellow canna that we have yet seen is good enough to name and perpetuate except to breed from hoping for improvement, the petals are too narrow.

Trees and Shrubs.

FILLING IN ABOUT THE TRUNKS OF OLD TREES.

R. W. P., Highland Park, Ill., asks some questions in regard to filling in around trees, and I state the following as my experience in that matter:

In the fall of 1888 by filling in around our office building quite a number of trees, consisting of elm and ash, were boxed up and the boxes filled with rubble stone. Some of the trees were about 4 feet in circumference and they were covered up to about 3½ feet deep. To-day they stand as healthy looking as any in the park, notwithstanding that dirt has gathered over the stones, covering them with a green turf. Among the trees were also same cottonwood, but these were not boxed. Two years afterwards by building approaches to a new bridge a majestic specimen of a cottonwood measuring 6 feet and 9 inches in circumference, had either to be cut down or stand a filling in of between 7 and 8 feet. I decided to fill it in without boxing. This filling in was done in the spring, and when the other cottonwoods stood in their green clothes this specimen did not show any signs of life. I waited patiently, having the best of hopes that it would come out all right, and after about two weeks of waiting it started to produce a foliage far superior to any of its kin in the park, and to-day it is by far the most healthy looking of the lot. JAS. JENSON.

Supt. Union Park, Chicago.

FILLING IN ABOUT A BIG SYCAMORE OF button-ball tree (*Platanus occidentalis*). —Mr. Geo. H. Brown, superintendent of public parks and grounds in Washington, D. C., when at Dosoris the other day told us about a big sycamore tree that stood in his way in grading for a street, the land had to be filled in six or seven feet, and as he disliked to destroy the tree he filled in around it as he would around a post without boxing or rubble either and headed back the branches considerably. The tree didn't seem to be any the worse for its trunk being buried, on the contrary, it very soon started to root from the encased stem into the new soil, and it stands to-day one of the healthiest trees in the Capital grounds. But he remarked all trees won't do that, only a few kinds will root from the buried stems.

FILLING IN ABOUT TREES.

W. R. P. makes inquiries in GARDENING of July 15 about filling in about trees, etc. Perhaps it might be of some benefit to him and others if I state what we were obliged to fill in owing to railroad improvements some eight years ago. All of the trees were planted about 18 to 20 years ago, and they are now vigorous and in good health; the filling is a loamy subsoil and rocks. Here is the depth of filling, no precautions were taken, branches and all were covered in:

One purple beech 9 feet, one *Picea Pichta* 9 feet, one common maple 5 feet, two arbor vitæ 5 feet, one *Magnolia Soulangeana* 6 feet, one weeping beech 5 feet, one sycamore maple 5 feet, one Bartlett pear 5 feet, one apple tree 5 feet, one Norway spruce 3 feet, one Austrian pine 5 feet, three pear trees 4 to 5 feet, cherry and apple trees on a slope from 4 to 7 feet.

CHAS. FREMD.

Rye, N. Y., August 20, '95.

PINE TREES FOR WINDBREAK.

I followed your advice in regard to a windbreak, last spring and set 50 Austrian and 50 Scotch pines. The trees were shipped from Wisconsin, were over three weeks on the road during the terrible hot week we had and about 70% are doing finely, almost to my surprise although they have had the best of care. Nearly every one that died was the Scotch.

Moosup, Conn. J. E. P.

ACTINIDIA POLYGAMA.—I lately saw this vine on a neighbor's porch in a position so exposed to the winter's severity that the trumpet vine (*Tecoma radicans*) freezes to the ground. It had reached a height of some thirty feet and was growing luxuriantly. My specimen is planted in the shade, at the root of a tree and in a rather dry situation and makes no headway. It shall have new quarters.

Chicago. W. C. E.

Roses.

BLACK SPOT ON ROSES.

E. C., Decorah, Iowa, asks: "What is the matter with my roses? These black spots (leaves enclosed) make their appearance, then all the leaves fall, but with good nursing they bud out again; the only thing that seems to help is a weak solution of sulphate of copper."

The trouble is Black Spot, a fungus disease widespread among both indoor and outdoor roses. Technically it is known as *Actinonema Rose*. The spores being wafted in the atmosphere are apt to attack roses anywhere and at any time during the growing season, but uncongenial conditions of cultivation and consequently an unhealthy state of the plants invite the disease. Quite healthy plants too are attacked. A wet season, sudden changes of weather, and undue soaking of the ground, fog, too heavy a mulching, too much animal manure in the soil and the like aggravate the disease. According to Dr. Byron D. Halsted "This trouble may be held in check by the carbonate of copper compound, using three ounces of the carbonate of copper, one quart of ammonia and 50 gallons of water. The spraying should be done once a week, using a hose and a nozzle that gives a fine spray. The point should be to wet every part of the plant and yet not drench it. If many leaves have fallen from the plant they should be gathered up and burned."

MRS. JOHN LAING ROSE is in bloom again and among the H. P.s the fullest of all. Unfortunately, however, it is pretty badly infested with mildew, which seems to be unusually severe on the H. P.s generally this summer. What a beautiful pink rose this is!

BUT ROSE MRS. DEGRAW, pink and a Bourbon, is the fullest, cleanest and best pink rose we have in bloom just now, and

MADAME GEORGES BRUANT, a rugosa hybrid, the most copious white one.

Aquatics.

A POND FOR AQUATICS.—In answer to R. M. W., Ontario, we would say: Have the pond out in the open sunshine. Better let it alone till spring, as beyond making the basin and walling it you couldn't do anything more this fall, for it is too late now to plant out water lilies. You can raise a good many varieties from seed, especially *Nymphæa zanzibarensis*, sown in pots of soil plunged just over the brim in pans or tubs of water in the greenhouse in winter, but as regards *N. odorata* in all its forms, *Marliacea* in its forms and other choice but inexpensive sorts we believe you will get more satisfaction and quicker results if you buy a plant of each to begin with. You can get your soil ready now though. Make up a pile of the best sod loam and cow manure as you would for roses, and turn it over before winter sets in to mix it well together. Don't use horse manure. Water lilies love very rich soil. And have a heap of clean tharp sand at hand to spread over the top of the soil when you plant the lilies, to prevent the water being muddy, as you have both a cellar and a conservatory, y u could even begin getting plants together now. Get a few empty butter tubs with iron hoops, at the grocer's, saw them down to the hoop, and scrub and scald them thoroughly. Now if you can get odorata lilies from the ponds anywhere, or a spare plant of any of the cultivated hardy sorts, or nelumbiums from your friends you can plant them at once into these tubs using light sandy soil, or sand alone for that matter, and keep them in a cool cellar—where potatoes or apples are kept would be a good place—over winter. Empty off the water, but keep the soil wet. If they live til spring plant them out in the pond. The tender lilies make tubers, and instead of wintering big tubs filled with lilies we simply grub up a few tubers, put these into pots, which we keep over winter plunged in a tub or tank of water on the greenhouse bench. We have an article in hand on how to make a water lily pond, and shall print it soon.

The Greenhouse.

GREENHOUSE QUESTIONS.

BY V. WOMONTYRE IOWA.

1. HEATING A SMALL GREENHOUSE.—"I found my old cook stove, bricked over with flue laid along the ground very good last winter for heating my 9x12 foot greenhouse, but it smoked."

Ans. Bother the old stove, and its parching breath, pungent smoke and pernicious gas. Send to the boiler men advertising in GARDENING, tell them exactly what you want and ask them what they can do for you. The expense isn't much and the result is perfect satisfaction.

2. "WHAT CAN I GROW on the ground under the south bench, the flue is on the north side?"

CACTI AT THE MISSOURI BOTANIC GARDEN

Ans. Ferns, mosses, rivinia, Zanzibar balsam, wandering Jew, and such things, or you can start bulbs there, or have a mushroom bed, or bring in and force some rhubarb there, if the draft from the door is too strong, have a muslin curtain to drop down over the bed when you open the door.

3. "How is sweet olive propagated?"

Ans. We presume you mean *Olea fragrans.* By cuttings.

4. "What plants for winter use could be started from seed now?"

Ans. Mignonette, and sweet alyssum and nasturtiums. Pansies sown now and kept in a greenhouse would also flower in winter. And it is not too late yet to sow calceolarias and cinerarias.

5. "Bugs?"

Ans. Please send us another lot in a tin or wooden box, that we may get them in good enough condition to submit to a specialist in that line.

6. "Where can I get greenhouse seeds, palm seeds, etc?"

Ans. From the seedsmen advertising with us.

7. Can I successfully start cacti, agave, and gasteria seed now? I enjoy seed-growing so much?"

Ans. Yes, certainly. But so few of our seedsmen keep a stock of these seeds on hand that you may have trouble in getting them. Try A. Blanc, of Philadelphia or Mrs. Shepherd, Ventura, California.

8. "I have a regular poultry yard of various sorts of hen-and-chickens from seed—sempervivum and echeverias."

Ans. So have we of the hardy ones. Guess we'll send you a few of ours, they may add to your variety.

9. Horticultural reports.—"How can I get the reports published in my own state, or by the U. S. Government?"

Ans. Write to Prof. Budd, Ames, Iowa, and ask to be placed on the Experiment Station mailing list, and to the Secretary of Agriculture, Washington, D. C., and ask that the Horticultural and Pomological reports be sent to you.

CACTI.

Although we have a few nice hardy cacti that will brave all weathers out of doors the great majority of what we cultivate are not only tender, but they want attention at this time. They should now be in the fullness and fatness of good health, but a cold drizzling easterly storm at this time of year might cause havoc among them in two ways, namely, by rotting their roots or rusting their crowns. Therefore we would strongly urge you to get all your little mammillarias, echinopsis and the like under cover, either in a frame or on the piazza. Strong cereus, opuntias and echinocactus can stand it, but even in their case not too much.

We have always had best success with cacti by planting them out in summer, and lifting and potting them in August or September; the plants grow better and keep cleaner for it. All small, rare or expensive cacti we used to plant in pots and winter in the greenhouse, but vigorous opuntias we lifted with all the earth that would stick to their roots, and laid them on their sides in a light dry warm cellar. But it was only a make-shift, for while we seldom lost a plant, many of the branches would rot off. If we had these opuntias growing in pots, however, and the pots plunged overhead outside in summer, these plants lifted, retaining their pots and ball of earth, would live perfectly in the cellar. Our illustration shows a lot of the strong growing opuntias as grown in small pots and staged over winter in the Missouri Botanical Garden, and appeared in its Sixth Annual Report. We are indebted to the kindness of the director, Prof. Wm. Trelease, for permission to use it here.

THE GREENHOUSE.

Have all painting, glazing and other repairing done as soon as possible, and everything clean and neat. The plants that have been indoors all summer should now be perfectly clean. Bring poinsettias in out of the cold. Lift and pot what chrysanthemums you need. Repot the stevias. Cut back the show pelargoniums. Lessen the water to the amaryllises. As gloxinias are done blooming set them aside, keeping them dry. If one or two neat stakes will improve the achimenes apply them before the plants begin to fall over. Be careful about the begonias that are outside; cold rains from now on are apt to spoil their leaves and rot their roots. Pot some of the best of the tuberous begonias for blooming in the greenhouse or window between now and the end of November. Begin to lift and pot what winter blooming plants, like bouvardias, libonias, carnations and the like, that are planted out, so as to have them well rooted before cold weather comes. Cut off withered heads of hydrangeas so as to give the wood and leaves more light to ripen. Keep calceolarias, cinerarias and Chinese primroses near the glass in a cool airy place, slightly shaded from sunshine, and in a moist atmosphere. It isn't too late to sow some seeds of calceolarias and cinerarias yet if needed. Get in lots of cuttings of geraniums and other bedding plants, for it is better to keep over a young stock than bother lifting old ones.

BULBS FOR WINTER FLOWERS.

It is time now to get our winter bulbs, they do no good lying exposed and dry in the seedsmen's stores. Let us have them home, and get them potted up and stored past so that they may get a fair chance to make good roots before winter sets in, for on their generous root action largely depends their flowering capacity. And remember first come are first served, very few inferior bulbs ever find their way into early orders. Now let us consider what we ought to get.

HYACINTHS.

There are many kinds of hyacinths, for instance Roman, Dutch, feather, plume, grape, musk, starch, etc., and all common and useful garden flowers. But for indoor blooming in winter the Roman and Dutch hyacinths are the ones most commonly grown. Both are graded into first and second quality at least. While for outdoor planting second quality a common mixed give good flowers, for house culture we want the best.

THE ROMAN HYACINTH (*H. Orientalis albulus*) is a very distinct form of the ordinary Dutch hyacinth, indigenous in the south of France, but improved by cultivation. The bulbs are white, and a good deal smaller than those of common hyacinths, and they cost only about half the price. There are no named varieties of them. But in addition to the white flowered we have blue, straw, and pale rose forms, more or less in use, the blue especially. The white Roman hyacinths are grown in France and imported into this country earlier in the season than we get bulbs from Holland, usually about the end of July or first of August. While their flowers are fragrant they have not got the powerful odor peculiar to the large hyacinths, hence are very desirable as pot plants in dwellings, and their blossoms for cut flowers, and as they are so easy to grow and sure to bloom there is very little fear of them going blind. And we can have a succession of them in bloom from the first of November till April. Get them at once (ours are already potted) and pot them. Some now, some three weeks hence, and a few more three weeks later than the last; this is to give us a succession at flowering time. In potting those we want for pot plants put six bulbs in a 6-inch pot, and deep enough that only the face of them is seen above the soil; those for cut flowers are planted in small boxes, 3 inches deep by 6 or 8 inches square, otherwise plant and treat them as in pots. These are now set out of doors close together on a bed of coal ashes, and three inches deep of common loam heaped up over them to keep them cool and moist and the bulbs from rising up out of the soil when they begin to root, which they are apt to do if not weighted down by earth or ashes Or they may be stored on the floor of a cool cellar and covered with earth as above.

DUTCH HYACINTHS (*H. Orientalis*) are so called because they are grown in vast quantities in Holland for market, that country supplying the world. The number of varieties is legion, and most of them are so good that any limited selection means only a few of the best, there are lots more just as good. And the hyacinth is a pronounced example of blue, yellow, and red colored flowers being furnished by one species of plant. Each year we have given a selection of varieties in GARDENING. We will now do the same again, giving you our own list; these are excellent, inexpensive sorts and well tried for we have grown them all repeatedly.

SINGLE WHITE.—Alba maxima, pure white large bells, good spike; Grandeur a Merveille, blush white, compact, large spike; La Grandesse, pure white, large bells and spike; Madame Van der Hoop, waxy white, handsome, and Mont Blanc, snow white, large bells, broad spike.

SINGLE RED.—Fabiola, pale rose, pink stripe, large; General Pelissieur, crimson, large, compact spike; Macaulay, rose with carmine stripe, large; Mrs. Beecher Stowe, rosy pink; Solfaterre, orange red, with light center and Von Schiller, salmon-pink, striped crimson.

SINGLE BLUE—Baron van Tuyll, dark blue, large spike; Czar Peter, pale blue, good spike; General Havelock, deep purple blue shaded with black; Grand Lilas, porcelain-lilac, large; King of the Blues, clear dark blue, long spike, and Mimosa, dark purple-blue, large spike.

SINGLE YELLOW.—Among yellows we have not the numerous variety there is among the other colors. The best we have seen are Anna Carolina and Bird of Paradise, clear yellow; Ida, primrose; King of the Yellows, and L' Or d' Australie, fine yellows; and Obelisk, clear yellow and the best of its color we have ever grown.

DOUBLE HYACINTHS are fewer and less used than single ones, nevertheless they grow and bloom well. La Tour d' Auvergne, white, early; Lord Derby, white; Lord Wellington, blush, with rose stripe; Princess Louise, carmine; Blocksberg, porcelain blue; Garrick, lilac-blue; and Van Speyk, pale blue, are worthy sorts.

THE SOIL we use is good fibrous loam and well rotted manure in it with a dash of sharp sand or coal ashes. We grow them in pots because we want them for house and greenhouse decoration; what we want for cut flowers are grown in small square boxes, say 3 inches deep by 8 to 12 inches square, wider boxes are just as good only it takes more bulbs to fill one of them. The pots are drained well but aside from the apertures between the boards in the bottom of the boxes we don't drain them.

AS SOON AS POTTED they are set out of doors on a hard bed with a layer of coal ashes on it, the pots being close together and well watered; when the watering has dried on the surface we put three to four inches deep of common soil over them to keep all cool, and moist, and weight down the bulbs should they attempt to heave up when rooting If you care to have them there in winter and bring a few in as needed you may do so with safety providing they are also deeply covered over all with leaves, hay or other litter, enough to exclude frost. Even if a slight frost may not hurt the bulbs, it doesn't take much frost to burst a flower pot. But it is much handier and less troublesome to take the pots into the cellar over winter, covering them up there too to keep them cool, and moist, and free from frost.

OLD BULBS.—We keep our old bulbs. In summer they are stored in flats, dry and in a dark cool room. About this time we examine them and pick out all the large bulbs having solid hard crown tops to them, and plant these in boxes as described above and store them now outside with the others and in the cellar in winter. We get our earliest flowers from these old bulbs. They root quicker and start into growth earlier than do the fresh bought bulbs. True, the flowers are small but coming in so early they are much appreciated. Those that are not boxed off are planted out of doors. A few hyacinths planted in a cold frame with violets and polyanthuses will come into bloom nearly a month ahead of the regular open garden bulbs.

HYACINTHS IN GLASSES.—Choose the single flowered varieties for growing in glasses, as they are likely to produce finer spikes than the double ones. The regular hyacinth glasses are the neatest and prettiest to use, but any glass bottle with a mouth wide enough to easily support the bulb but not big enough to let it drop inside the bottle will answer all right, old blacking bottles answer well but they are very ugly. Fill the bottle with soft water till it almost but not altogether touches the base of the bulb. Some put a lump or two of charcoal into the bottle to sweeten the water. Now put the glasses into a cool, dark place, as on a shelf in the cellar cupboard, for four or five weeks, till the roots get almost to the bottom of the glass, when the glasses should be brought out to partial light, as on a shelf in the open cellar, and in a week or two to full light, as in a north or east facing window. Never have the bottles in a cold, draughty place, or where frost can get at them. Keep them filled with fresh water as full as they were at first, but no fuller. If the water gets cloudy or ill-smelling overflow the bottles or pour off the old and refill with fresh water. To support the hyacinths loop a piece of stiff but neat wire around the neck of the bottles with one end standing up straight eight or ten inches to tie the flower spike to. Hyacinths in glasses produce very handsome spikes. Use solid bulbs with hard crowns, and plant early.

BEGONIA DISEASE.—In answer to O. A. A., Blackinton, Mass., we would say, we hope to have a technical reply to his inquiry in next or a near issue. You are not alone in your trouble with tuberous begonias this year, for in many places they have diseased badly, especially out of doors.

Orchids.

ORCHID NOTES.

Most of the following species have completed their growth and will need a partial rest, a cessation of activity as it were: *Cattleya labiata*, *C. Bowringiana*, *C. Percivaliana*, most of *C. Trianæ* and the cattleya-like *Lælia Perrinii*. *Lælia anceps* is showing flower spikes. The pretty little *Pleione lagenaria* has attained its full growth and must be gradually ripened off, the plant being deciduous and flowering in the autumn after the leaves have fallen; it is sometimes called the "Indian crocus." When the cattleya sheaths begin to swell, the sign of flowering, they will need an increased supply of water to develop the flowers

Dendrobiums of the deciduous section like *nobile*, *Wardianum*, etc., need more light. Rub the shading off of the glass in the portion of the house in which they are. I find that the evergreen sorts like *D. chrysotoxum* and *thyrsiflorum* do not like the full blaze of the sun.

Cypripedium insigne, *Cyclogyne cristata* and *Phaius grandifolius* will need more light and a little weak liquid manure.

Orchids which are growing, such as *Cattleya Mossiæ*, *C. Mendelii*, *Lælia purpurata*, *Peristeria elata*, etc., need a good supply of water, be careful, however, not to let any water remain in the heart of the young growths.

Soft foliage orchids like *Miltonia vexillaria* are subject to thrips; a gentle fumigating, placing a handful of damp moss

on the top of the tobacco stems, is the remedy.

Phalenopsis require all the heat and moisture they can get at present. *Odontoglossums* must be kept as cool as possible; give them plenty of water and a sweet, moist, buoyant atmosphere.

Orchids in bloom on this place (August 20) are *Cattleya crispa*, *C. aureo chrysotoxa*, a splendid species resembling *C. Dowiana*, *Peristeria aspersa*, *Laelia Dayana*, *Cypripedium Pitcherianum* and *C. Sedeni*. WM. FITZWILLIAM.

Orange, N. J.

BOOK ON ORCHIDS.

A. D. M. asks: "Can one find outside of the costly manuals plain and complete cultural directions for the common orchids?"

There is no American book up to date on the subject. But there is a capital little book, so far as it goes, called the "Orchid Cultivators' Guide Book," by Mr. H. A. Burberry, gardener to the Rt. Hon. Joseph Chamberlain of England. The author has charge of one of the finest collections of orchids in England. It costs $1. Get it from the publisher of GARDENING. The costly manuals our correspondent refers to are probably Williams' "Orchid Growers' Manual," last edition, $10; Watson's "Orchids: Their Culture and Management," $6; and Veitch's "Manual of Orchidaceous Plants," $33.50.

ORCHIDS that have pretty well finished their growth need more air and more light, but never subject them to cold draughts or have them soggy in damp or dull weather. In the event of a cold wet storm start some fireheat in the greenhouse to sweeten the atmosphere and keep it moving, having a little ventilation on at the same time. In fine weather use water freely about the benches, walls and floors to moisten the atmosphere, but be careful about slopping the plants. Most orchids on blocks and in baskets and suspended pots may be hosed freely, but use great discretion and see that water doesn't lodge in the sheaths of the young growths over night and rot them. In watering orchids it is a good plan to go over them once a week and dip their pots or baskets bodily into a tub of water so as to completely soak them, and let the water run out; this is not so much to soak the roots and potting material but to wash out any stagnant souring moisture lodging about the roots. The same purpose is attained by pouring water on to the pots till it runs out freely from the bottom, it washes the stagnant water out of the peat or moss, and keeps the potting material sweet and healthy. Look after insects. In a dry atmosphere thrips are apt to sear the inner parts of the young growths. Washing, fumigating, or a free use of fresh tobacco stems in the house will destroy them. Scale of two or three kinds are apt to be troublesome, brush and then wash them off, laying the plant on its side while being cleaned so that the vermin may fall on to the ground rather than in among the potting material, there to rest and recuperate and again advance to the attack. Wherever you find ants busy at work about an orchid look out for soft scale, for the ants are farming them. They take the scales and set them into the heart of the young shoots, then carry some fine pieces of moss to the same spot to build a wall across the mouth of the opening to keep the scales at home. This you will very often find among cypripediums.

The Fruit Garden.

AN ORCHARD OF PEARS AND PLUMS.

J. E. P., Moosup, Conn., writes: "I am intending setting one-half acre of land with fruit trees, dwarf pears and standard plums or dwarf and standard pears. My plans for setting out are to put the standards 20 feet apart each way and to put rows of dwarf trees both ways between the rows of standards, making 435 trees to the acre, 108 standards, 327 dwarf I believe. Is the setting too thick? Which would you set for the standard trees, pear or plum and what variety? What variety of dwarf pear, all for profit? I have two markets, each 30 miles away, Providence, R. I., the largest. No example to follow in the place, as not enough fruit is raised here to more than supply the home market. Pears do well here and fruit heavily; plums grow well and fruit lightly. I have plum and pear trees set in '94 that have grown over four feet this year. Land is elevated, very rocky, but good, and inclined to be dry."

We would name the following pears to be grown as standards: Bartlett, Sheldon, Anjou, Clairgeau, Winter Nelis and Boussock. For dwarfs: Angouleme, Louise Bonne de Jersey and Anjou. As to distance, if you want to plant alternate standard and dwarf, as you suggest, plant the standards thirty feet apart; twenty feet would be altogether too close. We should prefer to plant the standards by themselves at twenty feet apart, and the dwarfs by themselves at fifteen or sixteen feet apart. For plums would name: Bradshaw, Yellow Egg, Quackenboss, Bavay's Green Gage, Fellemberg and Grand Duke, to be planted about twenty feet apart. All the above are good market fruits.

ELLWANGER & BARRY.

Rochester, N. Y.

STRAWBERRIES.

A. D. M., Amherst, Mass, asks: 1. "What strawberries, if any, of first-rate quality do well in matted rows?

2. Do the Marshall and Brandywine varieties thrive in light soil?"

1. Princess, Shuckless, Greenville, Iowa Beauty and Dayton.

2. Neither the Marshall nor Brandywine, so far as tested, do well on light soil. Both belong to a type of plants which must be on a heavy, deep, moist soil to have them in the highest state of perfection. J. H. HALE.

South Glastonbury, Conn.

YOUNG PLUM TREES DON'T FRUIT.

Lake Geneva, Wis., S. W. A., "would like to know why his plum trees, 6 years old, do not bear fruit. They are healthy and the bark on the limbs of the trees looks as if it had been varnished."

We cannot tell not knowing the cultural conditions of the trees and their surroundings. But if they are growing vigorously root pruning them now should lessen their growth and start them into bearing. Keep out 4 to 5 feet from the butt of the trees, and head in the branches a little at same time.

"THE JAPANESE WINEBERRY is hardy here," writes F. C. C., Bath, Maine, "but do you consider it worth growing?" The wineberry is like the wine question, it has strong friends and pronounced enemies, and the mass are indifferent about it. It is entirely a matter of how it behaves with you and how you like it. One of the finest sights in the way of berries we have ever seen was in the case of the wineberry on Long Island, and some of the most complete failures that have come to our notice have been of the wineberry.

PLANTING FRUIT TREES FOR MARKET is a laudable and profitable purpose, for no matter how plentiful the crop of apples, pears, peaches and plums may be choice fruit will always find a ready market, and usually a home market. What varieties we should plant is a local question. First go to the market you wish to supply and find out from the commission agents and fruiterers what varieties they prefer or find readiest sale for at a good price, what is the drift of the people's taste, and if there are other kinds of fruit they haven't got but would like to get. Then go out among your neighbors—farmers, gardeners, nurserymen and amateurs and find out which of the varieties you have noted grow and fruit well with them, also what other kinds do well and what sorts behave indifferently. Select accordingly. You may consult books and professional outsiders, and get lots of points from both, but their teachings are only general, what you get about your own home is positive. Limit the number of varieties to a few, and the fruits of these should be large, showy and of real good quality. Don't crowd your trees, give them plenty of room.

GATHER THE FRUIT.—Good peaches for home use should get soft on the trees before being picked. A suspended netting under the trees will catch the fruit before it falls to the ground and save it from much damage. A mulch of straw, hay, or lawn mowings under the trees answers the same purpose for pears and apples. Never let pears ripen on the trees if you wish to have them juicy and good flavored, pick them a fortnight or more before their ripening time and lay them, spread thin, on a shelf in a cool, dark room, well ventilated but not too dry. Rake up and remove all fallen fruit before the vermin escape from it into the ground there to remain and develop. Carefully look over all fruit that is gathered and in the house or cellar, for it is apt to rot quickly so early in the season. Pick out and remove every fruit of any kind showing the least speck of soft rot.

THE CALIFORNIA BURBANK BERRIES.—The hybrid blackberries and raspberries raised by Mr. Burbank of California contain perhaps the best advances ever made in this direction, and are a God send to the world. But are they hardy in the latitude of New York? Last winter was an exceptionally severe one, even killing many of our old Kittatinny blackberries to the ground and was hardly a fair test for the Pacific newcomers, but what we had were killed to the ground. Their multiplication however, from root cuttings is so extravagant that under a fair mulching they are not likely to die out nor run short in stock, and with proper burying over winter as we do in the case of ordinary raspberries, fig trees, etc., there is every hope of saving their mature canes unhurt.

THE TIMBRELL STRAWBERRY pleases me. On my ground it is more fruitful than the Sharpless, is equally healthful and vigorous and the fruit, if eaten at the right time, that is when the berry is still half or two-thirds white is of superior quality. ANSON D. MORSE.

Amherst, Mass.

GARDENING

WILLIAM FALCONER, Editor.

PUBLISHED THE 1ST AND 15TH OF EACH MONTH
— BY —
THE GARDENING COMPANY,
Monon Building, CHICAGO.

Subscription Price, $2.00 a Year. 24 Numbers. Advertising rates on application.

Entered at Chicago postoffice as second-class matter.

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All communications relating to subscriptions, advertisements and other business matters should be addressed to The Gardening Company, Monon Building, Chicago, and all matters pertaining to the editorial department of the paper should be addressed to the Editor of GARDENING, Glen Cove, N. Y.

GARDENING is gotten up for its readers and in their interest, and it behooves you, one and all, to make it interesting. If it does not exactly suit your case, please write and tell us what you want. It is our desire to help you.

ASK ANY QUESTIONS you please about plants, flowers, fruits, vegetables or other practical gardening matters. We will take pleasure in answering them.

SEND US NOTES of your experience in gardening in any line; tell us of your successes that others may be enlightened and encouraged, and of your failures, perhaps we can help you.

SEND US PHOTOGRAPHS OR SKETCHES of your flowers, gardens, greenhouses, fruits, vegetables, or horticultural appliances that we may have them engraved for GARDENING.

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A HUMOROUS PAPER.

J. W. Elliott, Pittsburg, Pa., writes: "GARDENING is getting to be quite a humorous paper. The 'monument' story in the last issu: (page 347) is as funny as anything I have read for some time."

Glad you appreciated it. It was the "free adv." dodge over again, but rather unique in device. Oh, the wiles and ways of some folk in trying for a free adv.! But GARDENING is a hard paper to squeeze into except openly by the front door of legitimate business and truth. And then we believe as you yourself, from your own experience, have written us, that it is the most substantial and profitable advertising medium in the country.

LILIUM WALLACEI is one of the real good things too few people grow. It is now in bloom. It is a dwarf lily with clear apricot colored flowers of the *elegans* type. More than that it keeps healthy, and is not as subject to disease as are many bolder species and varieties.

THE SIXTH ANNUAL BANQUET to florists, nurserymen and gardeners provided for in the will of the late Henry Shaw of St. Louis is to be given at the University Club, St. Louis, Saturday evening, 14th inst. The name of Henry Shaw is known among horticulturists the world over as the donor to St. Louis of the Missouri Botanical Garden, which he also munificently endowed.

AMERICAN POMOLOGICAL SOCIETY.—We have received just as we were going to press the proceedings of the twenty-fourth session of this society, held in Sacramento, California, January 16-18, 1895. It is a book 9x6 inches, and contains 212 pages. What a grand society this is! And what a power for good it is throughout the land. Its proceedings are full of solid truth about our fruits and all that concerns them—what they are or ought to be, what to grow and how to grow them, how to market them, and how to combat the pests that prey up them. All men interested in fruit growing should become members of this society.

THE JOURNAL OF THE KEW GUILD for 1895 is on our table. Three years ago the gardeners present and past employed in the Royal Botanic Gardens, Kew, formed themselves into a society called the Kew Guild and they publish an annual journal, the one now before us being the third. It gives a list of the Kew men past and present and their addresses so far as they are known. In the first *Journal* the number of men whose present addresses were unknown was a surprise to us, in fact we couldn't help thinking that but little effort was made to find them. And even now in this the third *Journal* improvement in finding these unknown addresses is scarcely discernable. Why is this?

HARDY BLUE PRIMROSES are among the recent achievements of European gardeners. They belong to the same set of which the wild yellow primrose is the type. They were raised by Mr. G. F. Wilson, an enthusiastic and discriminating amateur of Weybridge, England. The flowers are of fine form and substance, and run in color from soft pale blue to deep violet blue with yellow eye. They have been exhibited at several of the meetings of the Royal Horticultural Society of London, and where six of the varieties received an award of merit. These were Covenanter, G. F. Wilson, James Nimmo, Mary Erskine, Oakwood Blue and Red Gauntlet. They have now passed from the hands of the raiser into that of the florist, and are offered this fall at the rate of $2 a plant for named varieties, and $1.25 for unnamed seedlings.

A FRUIT GROWER FROM BOSTON was here the other day, he was particularly interested in pears. Around the Hub where the land is inclined to clayey is a noted pear country, but he never saw Clapp's Favorite in such perfection as at Dosoris, in enriched sandy land, and our Kirtlands, like golden Sheldons, were a wonder to him and more so when he ate of them. On the other hand he said our Angouleme, Diel and Lawrence were not as good as his. He admired the size and beauty of our Louise Bonne de Jersey, but was surprised when told they were worthless to us because of the unusual astringency of their skin. Flemish Beauty, next in quality to the Seckel, was with him as with us a failure on account of skin disease and cracking. Our Superfines were fully as fine appearing as his, but much poorer in quality. This shows that many varieties behave differently in different places.

THAT LITTLE COTTAGE GARDEN.—We appreciate the following letter which we have received from one of our most critical subscribers, himself the owner of one of the best filled and most beautiful gardens in the country:

"WHAT AN ELEGANT number the last GARDENING (August 15) is. How it will warm up the heart of Mr. Robinson when he sees it. What a charming scene you reproduce in the frontispiece, where nature is turned loose to ramble at pleasure, fearless of the shears or pruning knife? How bold some of the blossoms have become, climbing up upon the thatch of the cottage for more light or is it to get an unbroken view of their pleasant surrounding? Were I within thirty miles of that scene I would steal in there some moonlight night, even at the risk of ghouls and goblins, in order to get a peep at it. Oh for more lovers of Nature as she wants to be instead of admirers of her mutilated. All honor to the designer of that garden."

MR. BENJAMIN G. SMITH OF CAMBRIDGE, MASS., has fully recovered from a long and serious illness which confined him to the house for four months. This good news will be hailed with delight by horticulturists all over the country. Mr. Smith is a retired Boston business man, the president of the Massachusetts Agricultural Club, and an enthusiastic amateur gardener, and one of the kindest, most genial and lovable gentlemen one can know. In GARDENING, October 1, 1892, page 17, illustrations of his residence and garden are given, and our good friend himself may be seen there at rest on the settee in front of his piazza. But the following extract from a letter we had from him the other day will be read with pleasure by his many friends everywhere. "Up to my late illness I did not know anything personally about the infirmities of age. Indeed, during my travel [Last winter he accompanied the American Pomological Society to the Pacific Coast to attend its biennial meeting, which was held in Sacramento.—ED.] my associates said I was the youngest and oldest man of the party, I was everywhere on our journey when off the cars able to tramp about with the youngest of them sight seeing. After 14 years treasurer of the American Pomological Society I felt it my duty to resign and our excellent friend [Mr. Prosper J. Berckmans of Augusta, Georgia.—ED.] requested me to name a successor. I gave him the name of Mr. Chas. E. Richardson, who is also treasurer of the Mass. Hort Society and he has been appointed in my place. I regret you could not have accompanied us to the Pacific Coast, we were the recipients of elegant and unbounded hospitalities from Boards of Trade, mayors of cities and governors of states, nothing was left undone to make our joy complete. When we remember territorially California is about the size of the Republic of France, with some 37,000,000 of inhabitants—its future possibilities are great. I believe the world has never seen such material prosperity as has been developed there since the discovery of gold, 1849. It has contributed of gold alone $1,500,000,000, and its capacity for the production of fruits, grain, etc., are incalculable. Cali-

forma was a revelation' marvel'' to all of us who had never before made our appearance there. It can only be understood after traveling its entire length over a thousand miles. I have traveled as near as I can approximate first and last over the U. S. A., some 25,000 to 30,000 miles, to attend to the duties of my late office as treasurer A. P. S, from Canada to Tampa, Florida, and Boston to California, and in my old age [78 years.—ED.] as I remember the pleasant acquaintances formed of men interested in cultivating the soil and beautifying the earth it is a pleasant resource in recollecting them. As Sydney Smith said 'Once happy always happy in the remembrance of it.'"

The Florists.

THE SOCIETY OF AMERICAN FLORISTS.

Held its eleventh annual convention at Pittsburg, Pa., August 20 to 23. Its members comprise the practical florists of the country, men who earn their bread and butter by growing and selling plants and flowers. Competition in the florist business is very keen. But the successful men are brainy, bright, active people, who investigate the why and wherefore of every matter of detail in the selection and cultivation of the plants they handle, hence when they talk among themselves in open meeting, chunks of solid sense are apt to drop from their lips. And as this information is just as pertinent to the amateur as to the commercial florist is the reason why we have quoted so freely of it in this issue.

FROM PRESIDENT LONSDALE'S ADDRESS.

We cannot fail to be benefited by coming in contact with these broad-minded men of Pittsburg, who are continually planning and carrying out noble deeds for the benefit of the people. Note the grand scale upon which the glass structures are being built for the benefit of the public in this city, and how the plants and flowers, occupying these notable buildings, are being grown to interest not only people of leisure and the brain workers, but the industrious artisans also.

The florists' business is something more than the cut flower trade. There is the beautifying of gardens and grounds. The first thing every wide-awake florist will do is to beautify his own home surrounding. It is positively necessary for us to have examples of everything that is good, and grown in the most attractive and best manner possible, if we would have the desired effect upon the surrounding neighborhood.

The firm, which it is now claimed is growing the largest mignonette for cut flowers for the New York market, secured all the best strains of seed that could be obtained at that time, and only one plant out of the whole batch was selected; and every year since the very best plants are set aside for seed saving purposes. Last Christmas flower spikes from this special strain were sold at the rate of fifty dollars per hundred. A better price, I believe, was never paid for mignonette before. This statement of facts is introduced here for the purpose of showing what can be done by careful, intelligent, and patient selection. So highly is this seed valued that none of it is for sale, and up to the present time sufficient cannot be raised for this firm's own special purpose, that of furnishing cut flowers only. Here is food for thought and action. For what can be done with mignonette may be done with most other flowers.

CHRYSANTHEMUMS.

BY F. G. HILL, RICHMOND, IND.

Suppose that we try a division like the following:

Class A Commercial cut flower varieties.
B: Exhibition cut flower varieties.
C: Exhibition pot plants.
D: Exhibition single stem one-flower pot plants.

A dozen varieties possessing the essential qualifications, namely, color, form, depth, substance, stem, lasting qualities, are infinitely better than a hundred varieties selected at random. One of the first requisites for the commercial grower is the securing of a succession of bloom, having varieties that will follow one another through the limited season of bloom. Happily this is now possible; we name Mme. F. Bergmann as the first and best early white variety. This should begin to bloom above the 5th of October. Before Bergmann is done Mrs. Henry Robinson will begin to show its magnificent flowers; this variety possesses all the good qualities of a perfect white chrysanthemum and will begin flowering about the 13th of October, and is as fine as any mid-season variety.

I would fill the aforementioned classes as follows:

CLASS A WHITES.

Mme. Bergmann, Oct. 5.	Mrs. H. Robinson, Oct. 13
Jessica—Ivory, Oct. 15	J. H. White
Queen	Niveus
W. G. Newitt	Mrs. Jerome Jones
Eiderdown	Mrs. H. McK Twombley

CLASS A PINKS.

Mrs. Parker Jr	Mrs. E. G. Hill
Lady Playfair	M. Richard Dean
V. Morel	D. Toler

CLASS A—YELLOWS.

Ye low Queen	J. E. Lager
Miss M. M. Johnson	Radiance
Georgienne Bramhall	W. H. Lincoln
H. W. Rieman	Mrs. F. L. Ames

CLASS A—REDS.

M. Benj Giraud (very early).	Fisher's Torch.
Geo. W. Childs	Jno. Shrimpton

CLASS A—COMMERCIAL VARIETIES; COLORS NOT CLASSED.

Philadelphia	Silver Cloud
Charlotte	Inter-Ocean

Mrs. Geo. Magee.

CLASS B—EXHIBITION CUT FLOWER VARIETIES.

Queen	Mrs. Geo. Magee
Niveus	H. W. Rieman
Mrs. Henry Robinson	E. Dailledouze
Mme. C. Molin	H. L. Sunderbruch
Mrs. R. W. E. Murray	G. Bramhall
J. Agate	Golden Gate
Mrs. J. Jones	Golden Wedding
Mayflower	W. H. Lincoln
Mutual Friend	Col. W. B. Smith
Marie Louise	E. M. Bigelow
W. G. Newitt	R. McInnes
Dean Hole	Black Beauty
Mrs. Higinbotham	Geo. W. Childs
V. Morel	Jno. Shrimpton
Inter Ocean	C. B. Whitnall
Ada H. Leroy	Mrs. Geo. West
Mrs. E. O. Wolcott	Mrs. C. H. Payne
Mrs. G. J. Beer	Rider Haggard
Mrs. J. W. Crouch	Etoile de Lyon
Andes	Chas. Davis

Philadelphia.

CLASS C—EXHIBITION BUSH PLANTS.

W. H. Lincoln	The Bard
Nellie Elverson	Geo. W. Childs
L. Canning	L'Enfant des Deux Mondes
W. G. Newitt	Ernest Rieman
Jos. H. White	C. Chilfant
Egyptian	Robt. Bottomly
Emmunida	M. Wanamaker
Ivory	Mrs. Elsie Darlington

CLASS D—EXHIBITION POT PLANTS SINGLE STEM.

Ivory	Mutual Friend
Philadelphia	Eda Prass
H. W. Rieman	H. L. Sunderbruch
Minerva	V. Morel
Amoor	C. B. Whitnall
Jno. Shrimpton	R. McInnes
Etoile de Lyon	Chas. Davis
Inter Ocean	Niveus

W. H. Lincoln.

If I were limited absolutely to 12 varieties of chrysanthemums they would be the following, though I should deeply regret many of the omitted favorites

V. Morel	Ivory
E. Dailledouze	H. L. Sunderbruch
Philadelphia	H. W. Rieman
Mrs. H. Robinson	Niveus
M. Richard Dean	Queen
Geo. W. Childs	R. McInnes.

SELECTED HARDY PERENNIALS.

BY J. W. MCNANEY, READING, MASS.

For a special selection of the best 6 white flowering sorts I would recommend the following: *Achillea*, The Pearl, *Centaurea montana alba*, *Euphorbia corollata*, *Lathyrus latifolius*,* *Pyrethrum uliginosum*, *Lychnis vespertina fl. pl.*

In yellows the best 6 that I can recommend would be as follows: *Buphthalmum salicifolium*, *Coreopsis lanceolata*, *Doronicum plantagineum* var. *excelsum*, *Helenium Hoopesii*, *Helianthus multiflorus fl. pl.*, *Hemerocallis Thunbergii*.

In blue the best 6 I would recommend would be as follows: *Campanula Carpathica*, *Delphinium Sinense*, *Platycodon grandiflorum*, *Scabiosa Caucasica*, *Veronica amæthystina*, *Veronica longifolia subsessilis*.

In pink, red or scarlet perhaps the following 6 can be recommended as highly as any of the above: *Centaurea declinata*, *Heuchera sanguinea*, *Malva Alcea*, hybrid pyrethrums, *Lychnis flos cuculi plenissima*, *Silene Virginica*.

LATEST FACTS ABOUT ROSES.

Condensed from a paper by Mr. I. Kennedy, Philadelphia,

FOR OUTDOOR PLANTING.—Among the H. Ps. the two best of this year are Mrs. J. Sharman Crawford and Helen Keller. The flowers of the first named are of a deep rose color, tinted with flesh on outside, and large and full. Helen Keller has large, full, fragrant, rosy cerise flowers somewhat resembling American Beauty. Both are strong growers, quite hardy and bloom as freely as Mrs. John Laing. Both were raised by Alex Dickson & Sons, Ireland.

NEW EVERBLOOMING CONTINENTAL (EUROPE) ONES.—Hippolyte Barreau—crimson, very double, of fine form, a profuse bloomer. Not sure of its hardiness. La Neige. A new Bengal rose of the stamp of Hermosa or Agrippina, flowers white, medium size, very double. Albertine Borguet, style of Isabella Sprunt, flowers canary yellow, good for summer culture. Madame Edward Helfenbein—Plant vigorous, flowers chamois, apricot yellow shaded with carmine rose.

NEW POLYANTHA ROSES.—Pink Soupert, an American variety. Crimson Rambler, quite hardy, vigorous, freeblooming, but not continuous.

EVER-BLOOMING CLIMBING ROSES.—Climbing Meteor and Climbing Wootton, are two new varieties to be sent out next year.

GOOD OLDER VARIETIES.—Maman Cochet, silvery rose pink, double, large as a Mermet, and fine for August and September. It is one of the hardiest of the teas, under a furrow of earth 75% lived out of doors over last winter at Philadelphia. Clothilde Soupert should be in every amateur's garden. Over 500,000 of this rose is distributed annually.

There is one thing we want to bear constantly in mind, and that is the fact that the amateur American rose loving public want roses that will produce good flowers all summer and at the same time stand our winters without protection. In the hybrid tea we have found a type of rose that in a great measure meets with these requirements. The following are a few of the best—all splendid varie-

ties: Meteor, La France, Mme. Caroline Testout, Mme. Schwaller, Souv. de Wootton, Triumph de Pernet and Augustine Guinnoiseau. The above will be found a good list for outdoor planting.

Of the American introductions this year the most popular are Mrs. Pierpont Morgan and Belle Siebrecht. Mrs. Pierpont Morgan is a sport from the well known Madame Cusin. It is a stronger grower and the flowers are much larger and darker in color Belle Siebrecht is a seedling, a cross between La France and Lady Mary Fitzwilliam. The flowers are of a beautiful shade of pink and the buds long and pointed. These roses are being largely tested this year for winter forcing, and it is to be hoped they will stand the test. Both are of a splendid color and a step in the right direction.

There is an increasing demand for large flowers with long stems, such as the American Beauty, American Belle, Madame Caroline Testout, Bride, Bridesmaid and Meteor. While the latter is not an extra large flower, yet it is the best red rose we have for winter forcing. On the other hand, the demand for flowers of the hybrid perpetual class, Brunner, Laing, Baroness Rothschild and others, seem to be on the decline. This is especially noticeable in Boston, New York and Philadelphia.

A few varieties that I consider good to grow young stock of in the greenhouse in summer and lift and pot in fall, winter in a cold frame and plant outdoors next summer are Countess Riza du Parc, Coquette de Lyon, Dr. Reymont, Mme. Schwaller, Etoile de Lyon, Hermosa, Meteor, Mrs. Degraw, Marie Guillot, Papa Gontier, Souv. de Wootton, Queen's Scarlet, Souv. de Malmaison, Marie Van Houtte, K. A. Victoria and Mme. Caroline Testout This list might be considerably lengthened, but the above mentioned varieties are all good bloomers, and in most localities hardy with slight protection.

CARNATION DISEASES.

Mr. Fred Dorner of Indiana said: Our learned men have helped us a great deal in defining diseases, and no one is more thankful than I for their knowledge so freely given. They show us the character of the disease, how it develops and grows, but they as yet could give us no sure remedy. They tell us sulphate of copper and other chemicals will kill fungus, just as well as a doctor of medicine will tell us that quinine will cure fever. But very often in the face of these remedies a patient will die, and the rust will kill our plants. Our professors have not the practical knowledge of the culture of the carnation, which is essential for attacking the disease with success.

The Vegetable Garden.

EGG PLANT FRUIT.

J. L., Milford, Pa., writes: "Please tell me if egg plant can be kept in winter. I put away fifty last fall on the approach of hard frost, with other vegetables, in the cellar, but they only lasted a few days when they commenced to rot. I am told that they can be kept, but no one seems to know how."

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[CONTINUED ON PAGE 382.]

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plants up by the roots on hooks in a dry, dark, frost-proof room; a warm, well ventilated cellar would do. Cutting off the leaves and worthless fruit lessens evaporation, hence to a large extent shrivelling. Egg plant, like squash, in any stage of its existence, growing or cut, dislikes cold, also a stagnant atmosphere, hence the cellar is generally a poor place for it. We keep it in this way for a month or so in fairly good condition, but have never succeeded in keeping it over winter. If any of our readers have, will they kindly tell us how they managed to do it?

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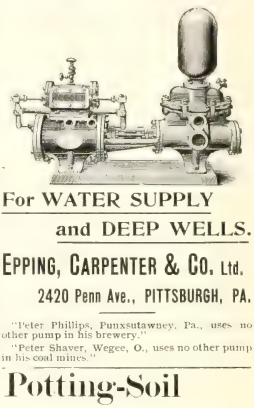

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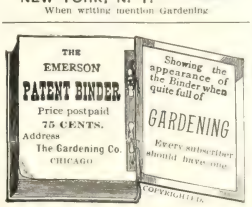

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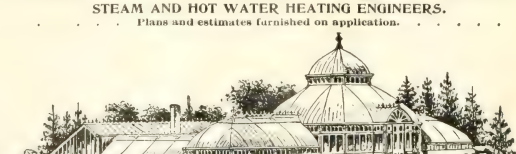

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VOLUME IV.

September 15, 1895 to September 1, 1896.

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VOLUME IV.

September 15, 1895 to September 1, 1896.

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GARDENING

Vol. IV. $2.00 A YEAR. 24 NUMBERS. CHICAGO, SEPTEMBER 15, 1895. SINGLE COPY 10 CENTS. No. 73.

CEDRELA SINENSIS IN FAIRMOUNT PARK, PHILADELPHIA

Trees and Shrubs.

THE CHINESE CEDRELA (*C. Sinensis*) IN FAIRMOUNT PARK, PHILADELPHIA.

Those acquainted with the cedrela only by reputation will be pleased to see by this illustration what a beautiful tree it is. This specimen stands where it has had a good chance to show its character, and it has developed beautiful proportions. Its foliage and wood much resemble that of the common ailanthus, in fact it is also known as *Ailantus flavescens*. But its flowers are not malodorous like those of the common ailanthus, the tree is rounder in form and does not appear to make such a tall growth as that well known ailantus does. Mr. Miller of Fairmount Park tells me this tree has been planted but about ten years, yet it is about thirty feet in height and nearly as many in width. He further says it is an excellent tree for carrying bright green foliage all summer in the dryest times,

when so many other trees are burning up by heat and drouth.

The ailantus would be a favorite tree for cities, as it thrives well in rough places and poor soil, but who can put up with the sickening odor of its flowers in June! There is a substitute for that tree in this one, the cedrela. There is no odor to the flowers so far as we know. In 1893 a tree of it flowered in Germantown. The greenish white flowers were in a long drooping raceme, some eighteen inches in length and with no odor. As regards the odor of the flowers of the ailantus it is a mistake to think that the flowers of the female one are odorless. To prove the matter I have watched the flowering of a seed-bearing tree here two years in succession, and no flower can be more ill-smelling than it is.

Philadelphia. J. MEEHAN.

A word about the hardiness of the cedrela: Eighteen years ago we planted a tree of it in the Botanic Garden, Cambridge, Mass., near the Linnæan street gate, in a sheltered place, but ground that was wet all winter, and it grew rapidly in height and bulk of trunk, and in several years we never knew of it being injured by the winter. At Dosoris it thrives admirably, but its big, pithy, young shoots so heavily laden with foliage sometimes suffer a little from breakage by wind and rain storms after July.

NOTES ON TREES AND SHRUBS.

CATALPA SPECIOSA may be readily distinguished from all others by its unusually thick seed pods, and *C. Kœmpferi* by its bunches of long very slender ones.

DEUTZIAS FOR FORCING if allowed to wilt and shrivel up now with drouth will be very much impaired.

THE SNOWBERRY BUSHES now arching with their load of ivory white berries are as showy as bright shrubs in blossom.

THE CHINESE TAMARIX is still gay in blossom, what an elegant shrub it is!

SPIRÆA BUMALDA is in full bloom a second time. It is a very compact, neat and floriferous shrub, running about 2 to 3 feet high, nearly twice as much in diameter, and a cushion of pink flat cymes of blossoms, more or less all summer.

CARYOPTERIS MASTACANTHUS with its profusion of pale blue minute blossoms crowded in its axils is opening its flowers. Although not at all a showy plant, blooming as it does at this time of year renders it a valuable acquisition.

THE CHASTE-TREE (*Vitex Agnus castus*) has been in bloom for a month; its long close spikes of small lavender flowers are quite attractive, although not showy. It is somewhat uncertain with us in winter.

CLEMATIS PANICULATA is passing from its glory, for it has been glorious. Save the seeds that ripen with you this fall and sow them in boxes out of doors or in a cold frame. They may germinate next spring or in the following July. What we sowed last winter in boxes in a shaded cold frame are now up; we believe every seed has germinated.

ABELIA FLORIBUNDA and *Leycesteria formosa* are two small shrubs that are hardy at Baltimore and south, but not so at Dosoris, but by heeling them into a pit over winter and planting them out in the garden in spring they keep in bloom all summer and till frost comes.

HYPERICUM MOSERIANUM is still in bloom. There hasn't been a day since June when it wasn't in flower.

BUDDLEIAS are coarse shrubs, and except for variety's sake are hardly worth growing. But no shrub we know of is more sensitive to drouth.

LESPEDEZA SIEBOLDII or *Desmodium penduliflorum* as it is more commonly called is now in perfection of bloom, and what a capital mass it is at this time of year. Every one should grow it, give it good soil and lots of room, and cut it down to the ground every winter, then make a crate for it to climb up through and let its shoots now laden with purple pea flowers bend over in graceful fashion and so that the crate cannot be seen. The white flowering form known as *Desmodium Japonicum* is a fortnight later in blooming than the other and is now only opening its flowers.

HYDRANGEAS must have water if we want good foliage and fine flowers; and if we keep them thoroughly well watered their panicles will keep in beautiful condition far longer than they would if at all left to get dry.

KOUSA BERRIES.—There is now in ripe fruit at Dosoris two trees of *Cornus Kousa* (used to be called *Benthamia Japonica*), a Japanese plant, laden with bright red, soft fruit like strawberries, each berry about an inch to one and a half inches in diameter and set singly on a stalk like a cherry. They are showy and ornamental, and the happy robins in the trees remind us that the fruit is good to eat. But we don't care for it. This cornus has large white showy "flowers" like those of our flowering dogwood but appearing later in the summer (June). Given an open, warm, sheltered spot, and good moist ground, as a flowering tree it is, in its season, one of the most beautiful plants in the garden. It was illustrated in GARDENING, page 149, February 1, 1895.

ROSA PISSARDII is a single white-flowering species that is now very prettily in bloom, in fact it has been in flower all summer. It suffered a little last winter, but soon recovered and set to growing, and every stout young shoot all summer has been terminated by a bunch of many buds and blossoms. And there are more coming.

ALTHÆAS.—Plants that were left to grow at will and had not been pruned are now past blooming, but bushes that were pruned hard back last winter or spring are still bearing many blossoms, although much past their best. We heard some one speak of them as "tree hollyhocks" the other day. Now, don't do that. Rose of Sharon is a common name for them, but we like althæa best.

CLERODENDRON FŒTIDUM or *Bungei* is a spreading shrub with large handsome leaves, and now large, showy, broad heads of purplish pink flowers. But on account of its ill-smelling leaves and habit of dying down in winter and suckering all over the place next summer we cannot recommend for small gardens.

CLERODENDRON TRICHOTOMUM is another species taller and hardier than the preceding, and also now in bloom. Let us quote from one of the most conservative European catalogues: "The flowers appear in September and are produced in large terminal cymes; they are white with a purplish calyx, and delightfully fragrant. It is one of the most distinct and useful of hardy shrubs. Its vigorous constitution, bold aspect, and its blooming at a season long after other flowering trees and shrubs are past their beauty, cannot fail to recommend it as a desirable plant for every shrubbery." All quite true so far as large gardens are concerned. It is 10 feet high at Dosoris now and in full bloom, but it suckers badly at the root, sprouts coming up 6 or 8 feet away from the old plant, and the foliage is as ill smelling as that of the Jimson weed.

THE VARIEGATED JAPAN PINE.—There is a very pretty plant of the variegated *Pinus Massoniana* here, the one whose foliage is white with transverse green markings. It rivets the attention of everyone who comes near it. An eminent landscape gardener looked upon it the other day. "No" said he, "we wouldn't dare to use that sort of thing in our work. But I must allow that no sooner do some of our patrons get through with our services than they root out some of our planting to make room for that sort of thing." Then why don't you set apart an appropriate place for such things, as you do for flower beds, rather than have them break in upon your work and mar your picture? It is the easiest thing in the world to screen aloud against all of these things, and when it comes to coarse, gaudy or sickly looking plants we don't blame you, but there are gems even among variegated plants, and this pine is one of them. Aye, and there are sour grapes among them too, this little pine for instance, and that is why we see it so seldom.

DIGGING IN SHRUBBERY BEDS as one would dig in a flower border should be discouraged, but when we look upon the baked hard crust in the shrubberies, common sense appeals to us to break it loose to readily admit air and rain. But don't dig it deep, only quite shallow.

POISON IVY ON THE TREES.—Get on your leather gloves and go out and tear it off and out at the root. Don't harbor it on your premises at any price.

JAPANESE MAPLES.

In North America we have nine species of maples, some of them of magnificent arboreal proportions, and surpassing in economic and landscape value the maples of any other part of the world. But all are not big timber trees like the rock maple or red maple, some are shrubs or small trees, for instance the mountain maple (*Acer spicatum*) and the moosewood (*A. Pennsylvanicum*). Japan, however, seems to be headquarters for the genus, no fewer than twenty species being indigenous in that country; but few of them, however, attain a large size, and none of them equals in this respect our large maples. *Acer pictum*, a tree not uncommon in our gardens, is their largest species, reaching in their forests about fifty feet in height.

But what we generally know as Japanese maples in our gardens are the little bushy plants with variously colored and often deeply divided leaves. They consist of two species, namely, *Acer Japonicum*, the one with the larger and more undivided leaves; and the other, *Acer palmatum*, or as we often find it in catalogues, *A. polymorphum*, which is the parent of all the fern-leaved and multicolored varieties. Not only are they esteemed garden plants in this country but they also find a place in most every garden in Japan, and the types are one of the main features of their forest flora.

These little Japanese maples are exceedingly beautiful plants, especially in spring and early summer when they burst into full leaf, and the various colors of the foliage are deep and decided. As the summer advances the deep colors fade out very much, but the lace-like foliage retains its beautiful outlines. They also blossom quite prettily in spring. And again in fall several of the varieties deepen in color and assume very beautiful autumn tints.

Although the Japan maples are hardy at Boston and Rochester they are not reliably hardy at Chicago; they seem to

JAPANESE MAPLES AS GROWN AT ROCHESTER

attain their greatest perfection in this country along the middle states. Like most Japanese plants they love shelter from cold winds, fairly good ground, abundant moisture at the root and good drainage.

All of the varieties can be propagated by layering, and it is a fine way of raising them too, for by it we get sturdy, healthy plants with good roots and of fine rooting action. But of course layering is a slow process and nurserymen could hardly afford it. The commonest way of propagation is by grafting. There is a general impression that the Japanese gardeners are perfect mechanics in the art of grafting, and superior to our propagators, but this is a mistake, uglier and clumsier work than we get from Japan in grafting and inarching maples we have never seen; such uncouth grafting would not be tolerated in an American nursery. And the fact that they work several varieties on to one stock is nothing remarkable, it is simply a finnicky piece of work that any boy can do, just as he can with roses or fruit trees. If you want a perfect plant restrict it to one variety. These maples are also raised from seed. But the seedlings raised from seeds saved from the varieties are largely the same as the original type; in some instances, however, as in the varieties *atropurpureum* and *sanguineum* quite a number are apt to come true to the variety. These are marked in the seed beds and saved apart from the others. And they make the finest plants, for there is no tree likely to be so healthy as the one on its own roots.

Among the best varieties to get are *Japonicum* and its larger leaved form *macranthum*, also *aconitifolium* with much divided leaves, and a gem. These are not fern-like leaved varieties. There is a very distinct form, too, with yellow leaves and called *aureum*, but it burns in summer with us. Among the finely cut sorts get *dissectum*, green; *dissectum atropurpureum*, crimson; *atropurpureum* and *sanguineum*, with larger and less divided leaves than the others, deep crimson color and vigorous habit. And by way of variety get the hornbeam leaved maple (*Acer carpinifolium*), a rare and pretty little tree with plain leaves not at all like those of a maple. It is perfectly hardy at Boston; in '77–'78, there was a fine specimen of it at the Botanic Garden, at Cambridge, and which we layered, raising many young plants from it.

Where the climate is too severe for these beautiful little maples let us urge upon you to plant the Ginnala maple (*Acer Tartaricum* var. *Ginnala*), a Manchurian tree, also common in Northern Japan. It makes a small leaved beautiful little specimen 10 to 20 feet high in the garden.

Our illustration was engraved from a photograph of a Japanese maple (*palmatum atropurpureum*) as it is now growing in the Mount Hope Nurseries, Rochester, N. Y., and we are indebted to the courtesy of Messrs. Ellwanger & Barry for the use of it here.

TRANSPLANTING A LARGE HORSE CHESTNUT TREE.

Subscriber, Amityville, L. I., writes: "I have a horse chestnut tree about 30 feet high which I would like to transplant this fall or winter. Can it be done with success?"

Take your ladder and saw right away and cut in the branches of that tree quite hard, even head it down a good many feet. Then describe a circle around the stem of the tree, on the ground, say running six feet out from the trunk. Just outside this circle cut a deep trench, say 4 feet deep, so as to sever every root projecting beyond it, and fill it up at once. About the end of March or first of next April throw out this trench again and dig the dirt away from the roots till the ball is reduced enough to permit of the tree being carried from one place to another. Horsechestnuts are easy to transplant, but in the case of such a big tree as that there are risks; besides it is a laborious and expensive job, and often times a healthy young tree will, after a few years, outgrow the big old one.

MATRIMONY, MADEIRA AND MANETTIA VINES.

J. B. G., Flushing, N. Y., asks if they are hardy.

MATRIMONY VINE (*Lycium*): Yes, perfectly.

MADEIRA VINE (*Boussingaultia*): No. It is a tuberous rooted plant, so we dig up the roots before sharp frost sets in, cut the vines off, let the tubers dry a little in the sun, then store them past dry in the cellar just as we do dahlias. When the ground gets mellow and dry about the end of April or first of May we plant them out again. They don't need much warmth in winter; simply, like potatoes, keep them from frost.

MANETTIA CORDIFOLIA: No, it isn't hardy either. It is a tuberous species, in this way differing from *M. bicolor*, the kind boomed so much during the last few years. On the approach of sharp frost cut the plants well back, to within a few inches of the ground, and lift the roots, keeping a little loam to them if it will stick, then store them close together in a shallow box, covering them with loam. Keep in the cellar over winter and away from frost, but don't let them get dust dry. In early spring you may pot them up singly and start them a little before planting them out; or you may leave them dormant in the box till it is time—first of May—to set them out.

SASSAFRAS TREE IN FRUIT.

C. B., New York, writes: "I enclose herewith a spray of leaves and fruit from a tree growing by a roadside in Englewood, N. J. The tree is about 20 feet high and covered with the fruit. It has the appearance and characteristics of a sassafras, but I have never seen a sassafras in fruit. I shall be much pleased to know what it is. I wish to express my continued pleasure in reading GARDENING."

It is a sassafras. But the part you send us is only the pedicels, the fruit, a blue drupe, must have already dropped and you didn't see it. Even the multitudinous red, fleshy pedicels, however, hanging in clusters all over the twigs, without the fruit, are very ornamental, and, in fact, not very common by the wayside.

Roses.

THE ROSES ARE MILDEWED.

X, South New Jersey, writes: "On returning from a trip away I find all the roses mildewed and their lower leaves growing yellow and dropping off. The kinds were selected from a careful comparison of many different lists in GARDENING;—La France, Malmaison, Persian Yellow, Mrs. John Laing, Mme. Georges Bruant, Clothilde Soupert, Paul Neyron, Hermosa, Cramoisi Superieur, etc. I am trying sulphur, but am afraid it is too late. Would cutting them back severely do good? And if so, when should it be done? They are in good rich soil, two feet deep, which

was freshly put in my garden last fall, and are well watered every day, as seems necessary for all flowers and grass in this dry climate."

Outdoor roses are apt to mildew in summer in defiance of all preventives. We have three large rose patches here, two have been planted for several years, and one was planted a year ago, the latter being in the best ground. In the first two patches we had a little mildew in July and August, but it has mostly disappeared now, and without any preventive measures having been taken; in the new beds mildew set in in June very badly, and notwithstanding spraying and watering it has continued without cessation. Sulphur checks and in a measure prevents mildew, but it does not cure affected parts. The same with Bordeaux Mixture and ammoniacal carbonate of copper. However, you cannot do better than use these, the sulphur as a powder dusted on the plants from a bellows, the others as a liquid spray applied from an atomizer or fine-rose syringe. But it isn't the downy mildew that is causing the lower leaves to fall off, they must be troubled with anthracnose, black spot or some other of the countless fungus evils peculiar to the rose (Dr. B. D. Halsted says 165 kinds are recorded). But the treatment given above will help the roses. Or, let us give Dr. Halsted's prescription: Black spot "may be held in check by the carbonate of copper compound, using three ounces of the carbonate of copper, one quart of ammonia, and 50 gallons of water. The spraying should be done once week, using a hose and a nozzle that gives a fine spray. The point should be to wet every part of the plant and yet not drench it. If many leaves have fallen from the plant they should be gathered up and burned."

No, don't cut down your plants at this time of the year. Cutting them now would cause them to start into fresh growth, and thus render them rather tender in winter, besides it might start the very eyes that should be preserved for next summer's blossoms.

The Flower Garden.

FLOWERS IN BLOOM AT EGANDALE, AUGUST 20, 1895.

One of the earliest dwarf asters to bloom is *A. Amellus* var. *Bessarabicus*, a Russian introduction growing about two feet high, producing freely large deep purple flowers with a yellow eye.

The Kansas gay feather, bearing the easily pronounced botanical name of *Liatris pycnostachya* is one of the rather showy flowers available for dry places. When grown in masses it is quite effective. It has stiff sessile lanceolate leaves, from which spring tall stems, bearing cylindrical spikes of pale purple flowers, reaching a height of three or more feet. Not choice enough for a select position.

The recently introduced fleabane (*Inula ensifolia*) grows six inches high, blooming quite freely. Flowers, a bright yellow and an inch and a half in diameter. It promises to be useful border plant. *Erigeron speciosus*, often catalogued as *Stenactis speciosa*, has showy aster-like flowers an inch and a half across, the ray florets are violet, numerous and very narrow, the center disk is yellow, foliage inclined to be tufted. The plant grows about eighteen inches high and is quite attractive. This is a second crop, its flush of flowers is in June.

The showy stone-crop (*Sedum spectabile*) an admirable member of the live-forever family from Japan, is a splendid border plant for a bed of perennial phlox, that in dry weather are apt to lose their lower leaves, which feature of untidiness the sedum hides. It comes into full bloom when the phlox is about through and remains in perfection a long time. It forms a broad almost glaucous colored plant some eighteen inches high, bearing numerous broad flat heads of handsome small rose colored flowers.

The cardinal flower (*Lobelia cardinalis*) is indigenous in our swamps, where it passes the winter more safely than in our gardens. In heavy soil its shallow growing roots are upheaved by alternate freezing and thawing, but in its habitat, the roots of neighboring plants protect it. In the light soil of Lincoln Park, Chicago, it winters well. Otherwise it takes kindly to cultivation with ordinary moisture, growing about three feet high and producing long flower spikes of a deep cardinal red color that are very showy at a distance. Its blue flowered companion *L. syphilitica*, a coarser and less showy plant, is also indigenous and improves under cultivation.

The giant ox-eye daisy (*Pyrethrum uliginosum*) is as its specific name implies another moisture-loving plant. Under good cultivation it soon forms large clumps, bearing terminal, daisy-like flowers two or more inches across. It comes from Russia and is a choice acquisition.

Phlox subulata, the American moss pink, is bearing its second crop of flowers, and while not as profuse as in early spring it gives us a color that is not common at this time. It has handsome moss like foliage only a few inches high and bears pinkish flowers in great profusion. It makes a capital edging and is hardy where water does not stand in winter.

Heliopsis lævis, the false sun flower and also known as ox-eye is the only member of the family indigenous with us and "the woods are full of them." They improve under cultivation and are admirable for cutting. They grow from three to five feet high, bearing golden yellow flowers about three inches in diameter. [But keep it in check, for it self sows so freely that it soon becomes a weed.—Ed.]

The sweet pepper bush (*Clethra alnifolia*) is weaker in flower this year than usual, probably on account of the last winter being so severe. It is an attractive shrub about four feet high, with dark green foliage, and showy upright spikes of creamy white fragrant flowers. [Abundant in swamps in the Atlantic States, but a very desirable garden plant for all that.—Ed.]

Hydrangea paniculata grandiflora, in standard and bush form is nearing its prime. It is so well known that a description is unnecessary. It well repays good soil and copious watering. A severe cutting back each spring and thinning out the weaker shoots in July tend to large panicles of bloom. These make fine winter bouquets for large vases. Just when to cut them is hard to tell. If too soon the sterile flowers (the only ones we generally see) shrivel up and if we wait too long they assume a withered look, but if we choose just the right time we preserve that delicate sea-green shade, and the early pinkish hue that comes to them. I make three cuttings. One about September 20, when I think it is nearly the right time, one later on, when I feel sure it is the right time, and again in about a week "for luck." These are hung heads down in a dark room to dry the stems straight, some being put heads up in an empty vase to produce drooping heads for front and sides of bouquet. When needed the best are chosen.

Clematis apiifolia, a Japanese species, *C. vitalba* from Britain and Western Asia, and our native *C. Virginiana* resemble each other, superficially in leaf and flower so closely as to all lay claim to the host of common names such as Lady's bower, Maiden's Honesty, Old Man, Traveller's Joy, Virgin's Bower, etc. All grow about fifteen feet high, and bear panicles of small greenish white flowers followed by feathery seed pods. *C. Virginiana* is the best of the lot, being more showy in foliage, flower, and especially in its feathery seed pods. The sweet scented Virgin's bower, *C. Flammula* is one of the oldest known and the best. Although indigenous to Southern Europe, it is hardy here. It is not quite as strong a grower as those mentioned above, but its flower sprays are larger, whiter, and deliciously scented. I have one trailing up against an akebia vine, whose rich green foliage makes an admirable foil for the delicate tracery in white. [In localities where it is not quite hardy cut it down to the ground in fall as you would a herbaceous pæony or larkspur, and heap a shovelful of coal ashes over its crown; on top of this spread a square yard of tar paper to ward off wet, then pile on some tree leaves one or two feet deep, according to the severity of the climate, with some litter over them to keep them in place. Remove the covering of leaves and paper in early spring and spread the ashes.—Ed.]

But the queen of all the small flowered type is *C. paniculata*, which is just beginning to favor us. It is a strong growing vine with handsome foliage, and climbs up some eighteen feet, throwing out laterals two or more feet long, and producing very freely at the axils of the leaf stalks long stems bearing large clusters of medium sized sweet scented white flowers that last in bloom a long time. These on an established plant, are produced so freely that were we looking for a common name—it has none yet—I would suggest "snow in August." If any reader has not this vine, let not another season pass without it. Keep it well watered, and as its season of bloom approaches feed it with manure water. When established, and well grown, if it does not please you, then there is nothing this side of Heaven that will. In winter, cut it down to within a foot of the ground and mulch well with strawy manure. The type of *C. viticella* has not so far bloomed with me, but its various hybrids have.

One word about where to grow these small flowered clematis. *C. paniculata* and *C. Flammula* are suitable for porch or house-wall decoration, in with the large flowered varieties, as they possess the added charm of loading the surrounding air with perfume, but the others belong in the shrubbery near strong growing, low headed bushes over which they may be allowed to scramble at their own sweet will, and a comparison of their method of "training" with that of man will convince any skeptic that Nature resents restriction. These forms lend themselves with good will to interior decoration either when in flower or seed, but they need a special training for it. I have a reserve stock planted at the inner base of the vegetable garden fence. Tall poles are set in the ground about two feet from the outside of the fence line, and eight feet apart. These slant so as to rest upon the fence top and lean over in the garden some eighteen inches. Between

BEDDING IN WASHINGTON PARK, CHICAGO

each pole a vine is planted. A strong string is run along the top of the poles parallel to the fence. From the base of each plant, strings are carried to the one above, spreading towards the top in a fan-like manner. Each leading shoot is trained to one upright string. The fence helps support the poles. When wanted cut the vine and string, and you have a long perfect vine. W. C. EGAN.

BEDDING PLANTS IN WASHINGTON PARK, CHICAGO.

Vast numbers of bedding plants are used every year in Washington Park, and they are chosen to the end of producing a display that shall be continuously good for a long season. Cannas are foremost among those found useful. The green leaved varieties used are: Mme. Crozy, scarlet edged with gold; Alphonse Bouvier, rich crimson scarlet; Florence Vaughan, yellow spotted with red; Nicholson, clear yellow; and Paul Marquant, dark salmon.

The dark foliaged varieties are Egandale, dark red and a splendid bloomer; J. C. Vaughan, scarlet and with foliage somewhat lighter in color than Egandale; and J. D. Cabos, lightest in color, both of flowers and foliage, of the three. All are free bloomers, and are confidently relied on to be always in flower. Charles Henderson is esteemed for its fine color and good spikes, but it comes into flower later and is consequently less satisfactory than the others. Cannas are always massed in Washington Park, heretofore almost invariably in round beds with one variety to each bed, but this year they are also massed in long groups of irregular width at the top of a long mound, on the sides and at the base of which most of the floral display is shown each year. Here the cannas are seen against a background of tall annual sunflowers, and are effective and dazzling.

Geraniums are indispensable where an all summer show in the same bed is a necessity. The single varieties that are here considered to best meet this requirement are Mrs. G. M. Garr, white; J. R. Lowell, rosy scarlet; Gen. Grant, scarlet; Beauty of Poitevine, salmon; Mrs. E. G. Hill, salmon; Glory of Poitevine, scarlet; Meteor, scarlet; Alfred Tennyson, rosy scarlet; and Ben Schroeder, pink. The semi-double varieties used are S. A. Nutt, dark red; President Leon Simon, dark red; Mme. Bruant, scarlet; Mme. Messenger, pink; and Mme. de la Chevalier, white. All of these are good, steady and abundant bloomers, and in every way satisfactory.

Begonias are this year given more prominence as bedding plants than heretofore. Only two varieties are used, viz., Vernon, red, and semperflorens, pink. These in alternating scrolls form a large, openly branched design. The same varieties are also used for the alternate sticks in a big fan of pansies that lies open on a triangular grass plot near the conservatory. The prettiest flower bed in the park, to my eye, is a great festoon of rich blue *Lobelia Erinus* that is hung on the sloping bank of the big green mound. It had been a solid mass of flowers for weeks. Sometimes this variety retains its good appearance throughout the summer, but as soon as it deteriorates it is replaced by variegated thyme and alternantheras. This is true also of pansies.

Sweet alyssum Tom Thumb is used as a bedding plant with excellent results. It is seen to especially good advantage in the flowery letters that set forth the name of the park, and in a 16-inch band that underscores those letters. And the same pretty little flower makes a simple but novel flower bed in the shape of a spiral line some eighteen inches in width that lies on the grass in a coil not less than fifty feet in diameter. This design was made by standing a length of sewer tile in the center of the space (firmly held in place by a stake driven through it into the ground) and coiling around it a rope with a sharp stick at the end. Then, as the rope was carefully uncoiled, a line was marked in the sward with the stick, making a perfectly spaced spiral. By repeating the operation at the right distance from the first position the second outline of the narrow bed was cut. The sweet alyssum used here for bedding are from cuttings started in March.

Other flowering plants used for bedding are single petunias, cornflowers that are later replaced by cockscomb, Pearl tuberoses, snapdragons, Cope's Pet ageratum, and this year the white *Swainsona galegifolia* is being tested as a bedder.

The principal foliage plants in use are: *Iresine Lindeni*, *I. metallica*, plain and variegated thyme, *Centaurea candidissima*, *Santolina*, *Centaurea gymnocarpa*, *Alternanthera versicolor*, *A. rosea*, *A. paronychioides major*, *A. aurea* and *A. aurea nana*.

The coleuses are: Firebrand, Her Majesty, Serrata, South Park Gem and South Park Beauty, Verschaffeltii, Velvet Mantle, Acme, Admiral and Marvel. Carpet plants other than alternantheras and

plain and variegated thyme are cheverias in variety, but mostly *E. secunda glauca*, *Oxalis tropæoloides*, *Sempervivum* and *Othonna crassifolia*. American agaves are also largely used.

INGENIOUS VEGETABLE CURIOSITIES have been omitted from the '95 display of bedding plants. They have given place to examples of carpet bedding of the more legitimate type. The carpet beds are notable as quiet, harmonious color schemes. In fact everything that is crude, startling or sensational in gardening has been avoided. The result is satisfactory to numbers of people, but as the opinion of this class seldom reaches Mr. Kanst it is feared that he finds small encouragement in his laudable effort to educate the public to a taste for what is best in gardening. On the other hand he does hear loud wails of disappointment from those who take the loss of skillfully constructed vegetable wonders as a personal grievance.

Chicago. F. C. SEAVEY.

FLOWER GARDEN NOTES.

The following notes may be of some interest to your readers.

IPOMŒA SETOSA.—I am much disappointed in it. The leaves to be sure are large and the stems hairy, as described, but with me it does not branch as freely as mentioned, and therefore is not desirable for heavy shade. It runs up twenty or thirty feet, and the flowers all come towards the top, out of reach. There is no special beauty in their dull pink purple color, and they close early in the day. Seeds are as hard as a rock and germinate very slowly.

IPOMŒA SINUATA.—A very beautiful appearing vine, delicate and graceful, with much cleft foliage. Has not flowered yet, but the flowers are said to keep open all day. It is worth growing for foliage alone.

IPOMŒA GOODELLII, or tree ipomœa.—This plant makes a good appearance with its large thick leaves, of a peculiar shade of green. The color of the flower, a purplish pink, is rather pleasing, the color of the throat being darker and richer. It makes many shoots from the roots, and altogether commands notice. Unfortunately the flowers close early in the day.

COSMOS SULPHUREA.—With me it is a distinct failure (as a cosmos) although as well grown as it ought to be. The plants are about 18 inches high, with rather cosmos-like foliage, but the flowers are quite small. They are five petalled, like a star, of a clear deep yellow. It is not very proliferous in bloom. If it had not been called cosmos I might not have been so disappointed in it. Flowers all summer, and the flowers many would consider very pretty.

YELLOW CENTAUREA or corn flower.—(Do not know botanical name.) I understood from my florist it was a novelty, and it certainly is a beautiful flower, very much resembling a clear yellow thistle, but much smaller. Notwithstanding spongings with kerosene emulsion my plants all died, whether from red spider or aphides, or from too much water at the root, I am unable to say. I found very soon that it was very subject to spider and aphides. [Sure it isn't the yellow sweet sultan (*Centaurea moschata*)? We know of no reason why an outdoor centaurea should be attacked by red spider unless it had been grown indoors to begin with and then planted out in the garden, or grown alongside of other plants that had been raised indoors. This being the case, both red-spider and aphides would be likely to infest it. While it isn't a very hard matter to free the plants from aphides, it is hardly practicable to get rid of the spider.—ED.]

BOLTONIA LATISQUAMA.—This surpasses my expectations of it. I set out in the spring a small root. Without any special care it has grown four feet or more tall, and has now over fifty open flowers, and enough buds to keep on opening for a month or more. I tie the principal stem to a stake and let the top branches spread out. The foliage is fine and pointed, hardly showing at all, so that the top of the plant is a spreading mass of light pink daisy-like flowers, immediately striking anybody's attention. Although exposed to high winds, the plant has escaped all injury. I mention this, as one of your correspondents lately gave directions for tying the spreading branches of the top of the plant. L. C. L. J.

New York.

OLD GOLD AND PINK FLOWERED CANNAS.

I have an old gold flowered canna without a spot and its flowers are as big as those of Florence Vaughan—it is something really good in yellow. I am now working on pink ones and have secured two fairly good ones that show up grandly in beds, but they are too narrow petalled to keep. Have you observed that the pink flowers improve with age, but the yellow ones bleach white?

A. GILCHRIST.

Since writing the above Mr. Gilchrist has read what we said in last issue of GARDENING, and adds: "I have sent to you to-day flowers of a yellow canna. The plant is a good grower, about as dwarf as Madame Crozy, and as free-flowering. When you see it I believe you will reverse the opinion you gave on page 347." We got the flowers; two fine spikes of large, broad-petalled, golden or old gold blossoms. No, we must still stick to what we said about yellow cannas. Yours, while a fine big flower, is not the clear, pure yellow we are striving for, and to which we referred in our former note.

SMALL CITY PARKS.

In many of the smaller cities and towns of the United States, and especially in the Western States, are blocks of land surrounded by streets which are reserved for public squares or small parks. They are generally planted with soft maple and elm trees. There is a band stand in the center and walks run diagonally across the square from corner to corner and are used as thoroughfares. The rest is left to grass and weeds, and probably mown with a scythe once or twice a season. Also we find many signs "Keep Off the Grass." Some of the squares or parks, owing to the paving and improvements of the surrounding streets, are generally low, muddy and uninviting places. In fact, this was a good description of Spencer Square at Rock Island, Ill., a few years ago, until the president of the Citizens' Improvement Association, a real philanthropist and friend of the poor, interested the city council to have the square filled and walks laid out, trees and shrubs planted and flower beds made and filled. Then various citizens contributed vases, a fountain, entrance arches, a statue of Black Hawk (the famous Indian chief who lived near here), and various other gifts, until now Spencer Square is known far and wide as one of the most beautiful spots in Western Illinois.

The lawns are well kept, the flower beds filled with free blooming plants, and the vases are a source of enjoyment to many. Accompanying is cut of a large vase, showing the good growth and beauty of a well planted vase. Seats are furnished along the path for those who care to use them. The only objectionable features I find in it are the signs, "Please keep on the walks," which is a polite way of expressing the odious "Keep off the grass." The intelligent American resents it. To walk upon the grass when it is dry won't hurt it, and nobody wants to walk upon it when it is wet, especially where good walks are provided.

Parks are for the public use, made for and paid for by the people, and there are comparatively few who would knowingly destroy what they have an interest in. Public parks are grand accompaniments of the public schools in our education and elevation, and we should have all the enjoyment to be derived from the use of them. If the people persist in walking on the grass along side of a walk place some wires or other obstructions to prevent them walking there, but let them walk and sit on the balance of the grass all they please. If bare spots appear in the grass sod them over again; the people will pay for it cheerfully. If "Keep off the grass" signs must be used, please take them away every holiday and Sundays, and let the people enjoy what they pay for. During the Columbian Exposition at Chicago every Sunday between thirty and fifty thousand or more people visited Washington Park to see the flower beds there, and as they were in such numbers that they could not be kept on the walks they used the grass, and they have used it ever since, and Mr. Kanst, the gardener at Washington Park, says the people do not hurt the grass by walking upon it in such numbers, and they enjoy it.

Davenport, Iowa. JOHN T. TEMPLE.

The Greenhouse.

CHRYSANTHEMUMS.

The coming few weeks are a critical time for the chrysanthemum grower, as upon their management at this period depends success or failure. Disbudding, thinning out laterals, tying down shoots, staking, and feeding up the plants for the strain of the blooming period, are in order. Mr. Farrell, here, has taken in already (September 4) those of his standards of stocky, slow-growing habit to induce them to run sufficiently to cover the hoops; those of very free-growing habit like Princess of Chrysanthemums and Louis Boehmer he leaves out longer, but they all ought to be indoors by about the 15th inst. Sulphate of ammonia, about the full of a 3-inch pot in a barrel of manure water, using sheep manure one week and cow-manure another, he finds very beneficial. Discontinue using the sulphate of ammonia one week before the blooms open, as it has a tendency to make them flabby. During the period that the flowers are about to open have the temperature of the house cool—forced flowers are never well finished. Mr. Farrell says that the best blooms he ever had opened in a canvas-covered house which was both shaded and cool. After the blooms have opened the experience of old growers favors the shading of the flowers from direct sunrays, especially the dark colored varieties.

For mildew Mr. F. has used for many years, and has never known it to have

VASE OF FLOWERS IN SPENCER PARK, ROCK ISLAND, ILL

any injurious effect, sulphate of potassium—½ ounce to 2 gallons of water. Syringe the plants in the evening. If thrips are troublesome fumigate with tobacco.

Our neighbor, Mr. Thos. H. Spaulding, is growing this year about 12,000 plants, including 2,300 seedlings; some from their own hybridizing, and a great part from imported seed from Japan.

WM. FITZWILLIAM.

Orange, N. J., Sept. 5.

WINDOW PLANTS.

M. W. P., Hagerstown, Md., "had an outside window put to an east window in the sitting room last winter, with a space between them for plants; besides the floor room there are two shelves. The sun came in from sunrise till 2 p. m. The inside window was generally open. The temperature in the day time was 55° to 70°; at night it was much cooler, but with the aid of old newspapers nothing ever got frozen. The plants I grew there were rose, nutmeg and fish geraniums, Otaheite oranges, ixias, sparaxis cyclamen, Mexican primrose and heliotrope. In watering them a little ammonia was used in the water occasionally. Most of them grew and looked very healthy, but only the sparaxis and heliotrope bloomed. Do you think that violets, pansies and carnations would bloom there next winter, and would it be best to keep the window in the sitting room up or down?"

That window should be a good place for plants. By all means open the sitting room window all you want to. And have the outside window so arranged that you can open it much or little as you wish; then every fine morning while the sun is shining on it open it a little, and for a few minutes or more, according to the weather. After January you can have many plants in bloom; the shortness occurs from November into January. And much depends upon the condition of the plants before they are brought into the window whether they are going to bloom early or not, for instance newly lifted or newly potted plants exert their efforts in healing their wounds from the late lifting, then they have to make lots of fresh roots and some more growth before they take to blooming. But with well prepared, well rooted plants that window should be gay from now on. Violets and pansies dislike dry heat and high temperature, still the coolness at night might offset that and they bloom with you. Carnations, such as Portia, and given lots of water too, should bloom nicely there. So too should Roman hyacinths, paper white and trumpet narcissus, freesias, Dutch hyacinths, Zanzibar balsams, single petunias, red oxalis, oboonica primula, dwarf stevia, pink (*incarnata*) begonia by pulling a muslin curtain between it and the sunshine, and other begonias. In fact experiment alone can limit the material at your command for such a use.

BULBS FOR WINTER FLOWERS.

TULIPS.

While we have a large variety suitable for planting out of doors, those fitted for indoor work are comparatively limited. Late tulips are worthless for this work, and so are all of undecided or negative colors, and of tall lanky habit. Tulips of purple shades while all right in the flower garden are undesirable for forcing. And although tulips when planted out are sure to bloom and at their seasonable period, it often happens that there is a good deal of trouble and uncertainty as regards the proper flowering of tulips indoors in winter. It is useless trying to get them in very early, say at the holidays, we only court disappointment. True, we often find Duc Van Thol tulips in the market at New Years, but as a rule how wee, and short stemmed, and unhappy they look.

VARIETIES FOR FORCING, or rather for winter flowers.—Get some scarlet Duc Van Thol for earliest blooms. Then have Belle Alliance, dark scarlet; Bride of Haarlem, white, striped and feathered with crimson; Canarybird and Chrysolora, both yellow; Joost van Vondel, rosy crimson with white pencillings; Keizer Kroon, crimson scarlet broadly edged with yellow, one of the best; White Pottebakker; Proserpine, rose; Rose Grisdelin, rose and white; and Vermillion Brilliant, vermilion.

SOIL AND TREATMENT.—We get the bulbs as soon as possible and plant a lot in pots for greenhouse and house decoration and the balance in flats (shallow boxes) for cut flowers. Never have more than one variety in each pot or box. Mixed tulips are of no use for winter work as they are uneven in size and widely different in color of flower, habit and time of blooming. We use the same kind of soil for tulips as for hyacinths, and otherwise treat them like the latter, but in potting them we bury the bulbs out of sight; this is not necessary in the case of the boxes though.

OLD BULBS.—After forcing our tulips we let them ripen, and when they are dry shake them out of their pots or boxes, keep them cool and dry over summer, and plant them out in the garden in fall. In a year or two many of them will make good enough outdoor tulips. But they are worthless for forcing again the next year.

LILIES.—We keep over our old Harrisii lilies. After they have done blooming they are given water enough to keep them plump and green till May or June, when we turn them out of their pots and without breaking the ball of roots at all plant them out and close together in a row. They get no water except the rain and no attention except to keep them clean from weeds. About the end of August they are lifted, broken apart and the bulbs separated and graded. They are then repotted, one bulb in a 6-inch pot, and more together into a larger one, and set outdoors alongside the callas and freesias, behind a north-facing board fence, where they are shaded from warm sunshine. To set them into a cold frame with a shutter over them would be a good place, and better than on the open ground because they wouldn't get unduly dry or soaking

wet just as the weather might be. In potting the bulbs are buried an inch or two under the surface according to the size of the bulb or the pot. A covering of loam over them would be all right to begin with, but the moment stem growth would begin it should be removed lest it would spindle and bleach the young shoots. These bulbs don't give us any blossoms before February, but they are in fair trim for Easter. For early flowers we buy a fresh lot of Bermuda bulbs every summer, getting small to medium sized roots. Pot them, one each into a 6-inch pot. Of course for tall bold plants we must get large bulbs.

NARCISSUS.

We cannot have too many of these. They bloom with us from November till May. What varieties to get depends on our own fancy and convenience; usually, however, the sorts are paper white, Chinese sacred, Von Sion, single trumpet, jonquils and early poeticus.

PAPER WHITE.—Get the large flowering form. Pot or box them now exactly as you would Roman hyacinths and otherwise treat them the same; when it is about time to expect a sharp frost get them into the cellar or a cold frame and cover them over with earth or ashes two or three inches deep. Never let frost reach them, for it will surely injure them. If you want them in flower early bring them into a warm room or greenhouse proportionately early, and a few each week so as to keep up a succession.

THE CHINESE SACRED LILY is a narcissus belonging to the same set as the paper white and may be grown in exactly the same way as the latter, but as its flowers haven't much staying quality when cut we prefer to grow this variety in bowls as the Chinese do, and not cut them. Take any bowl, basin or other vessel that will hold water, and two-thirds fill it with small pebbles from the beach or river side or gravel bank, it matters not, then set the bulbs—six or more in each, according to size of the dish—upright and two to three inches apart on top between the pebbles, just so that the stones will hold them standing up. Now fill up with soft water enough to cover the stones, but not enough to float the bulbs. Then set the bowls aside anywhere in a cool somewhat dark place till the bulbs begin to throw out roots enough to steady them among the stones, when they may be brought out to more light, warmth and air. They are exceedingly easy to grow and quick and if you don't keep them too dark or too warm they remain stocky enough to need no staking whatever. When out of bloom throw them away, for they are of no good for after years. Most any other kind of polyanthus narcissus can be grown in the same way.

TRUMPET NARCISSUS OR DAFFODILS.—Of all the narcissus these are the most pleasing, and when we are done with them in pots we can plant them out in the garden and have them in bloom there in after years, for they are hardy and sure bloomers and with good cultivation increase in strength and numbers. Get the very best even if you get fewer of them. They are Ard-Righ, Emperor, Empress, Horsfieldii, Golden Spur, Maximus and Obvallaris. Restricted to three we would take Emperor, primrose perianth, golden yellow trumpet; Empress, white perianth, golden trumpet, and Maximus, trumpet and perianth both deep golden yellow. Pot and otherwise treat them as you would tulips.

VON SION OR DOUBLE DAFFODILS.—If we take the imported bulbs from Holland such as we get at the seed stores and grow them either as pot plants in winter or planted out in the garden for spring blossoms we get handsome yellow blossoms from them the first season; after that, however, the flowers assume a greenish tint and are practically worthless for cut flowers or garden decoration. But they will grow like weeds. After forcing them we throw them out. Treat the same as tulips.

PHŒNIX NARCISSUS or Incomparabilis varieties commonly known, according to variety, as Orange Phœnix, Silver Phœnix or Sulphur Phœnix, are double hardy, free growing, free blooming sorts of much merit both for indoor and outdoor cultivation. The Sulphur Phœnix is the largest and finest. Treat them like trumpet narcissi, but as they are apt to grow rank they don't make such nice pot plants as do the trumpet sorts.

JONQUILS, including Campernelle narcissus, are very desirable pot plants. Treat as you would trumpet narcissus and be careful not to hurry them into bloom, else they may go abortive or blind. If potted in September they should come in handsomely from February on.

POET'S NARCISSUS.—There are several forms of this sweet and lovely flower, but Ornatus is the only one we care to grow in pots. It blooms two to three weeks earlier than the type. Start it early but don't hurry it. March is soon enough for it.

CROCUSES, SNOWDROPS, SIBERIAN SQUILLS, CHIONODOXA and such small bulbous plants are very nice to have in winter. Grow them in pots for window and greenhouse decoration rather than for cutting. Get the large flowering crocuses and the *Elwesii* snowdrops, they make a greater show than do the ordinary forms. The secret of success is to plant early and keep them cool in fall and early winter, in fact plunge them out of doors in a sunny spot with a surface mulching of two or three inches of half rotted leaves over them to keep them from getting sunscalded. Of course this would burst clay pots, and boxes are unseemly, so we use paper pots for this work.

GRAPE HYACINTHS (*H. botryoides*) is an exceedingly common little hardy plant in gardens, running wild whenever an opportunity presents itself, and there are blue and white varieties of it. The white is the best for winter forcing. Its spikes of flowers remind one of lily of the valley. Treat like crocuses.

PLANTS FROM SEED.

C. W. R., Whitehall, Michigan, asks: "Is it practicable to raise the following plants from seed, by an amateur—dracæna, ferns, iris, pæonias, palms and araucaria? and how long before the iris and pæonia should bloom? Will they come single or double?"

Yes, you can raise all of them from seed, and if you are an enthusiast in gardening you may get a good deal of interesting enjoyment out of it. If you mean, however, to raise them from seed as the readiest and cheapest way of getting the plants then prepare for bitter disappointment.

GREEN LEAVED DRACÆNAS such as *Cordyline indivisa* are easily raised from seed sown in flats in a warm greenhouse in a shady nook. But don't bother with the colored leaved sorts such as *D. terminalis*, as it is much easier to get them from cuttings and stem sprouts than from seeds.

FERNS are generally increased from seeds (spores). The seed is sown in pots or flats, in a still, moist greenhouse. When the seedlings appear they look like a film of green scum, but florists prick these off in little picks into other prepared flats, and when the seedlings begin to show discernable leaves and grow a little they are separated and planted singly. You will find lots of self-sown seedling ferns coming up about the other plants in your greenhouse. Seedlings always make prettier plants than those raised by division. Of course there are exceptions to this rule, for instance the furcans nephrolepis and the Farleyense maidenhair ferns.

IRIS.—All manner of irises grow readily from seed, but according to species sometimes germination is slow, taking one to six months. If well grown a few may bloom the second year, but most of them not before the third season. As regards the fine varieties of German or Kœmpfer irises no one can foretell what the seedlings may turn out to be, good or bad, or what color, or whether single or double (in Kœmpfer's iris only). Sow the seed in boxes in a cold frame now, the plants will likely make their appearance next spring.

PÆONIAS are easily raised from seed treated like those of iris, but the seed generally takes six or more months to germinate. And there is no telling beforehand what like the seedlings may be; in fact the first year's blossoms, like those of first year seedling tulips, are seldom the fixed flowers the plants are apt to bear in later years. They bloom the third or fourth year from seed.

PALMS are easily raised from seed, but they have an ugly way of standing still for two or three years after they come up, except under skillful treatment. In fact while Dreer, Pierson, Vaughan, Siebrecht & Wadley and other big florists grow tens of thousands of palms from seed every year they also buy and import a vast number of young plants. If you want a few palms for greenhouse or house decoration don't bother raising them from seed but buy them already raised. But probably you won't appreciate this advice till after you had three or four years' experience coaxing the seed into life and then trying to get them to grow after they have come up.

ARAUCARIA.—If this is a case of interest in gardening all right; if simply to get up a lot of plants cheaply then it's all wrong. Why, very few of our large florists even raise all their own araucarias, they buy them in the wholesale markets of Europe. While the seeds may be treated much as you would palm seed, and grow all right, the seedlings are of very little worth as decorative plants, lank and loose. The pretty plants you see with the florists are not seedlings but plants raised from cuttings, this is necessary in order to get the A1 quality short jointed stock you see in our best greenhouse establishments.

Cold Frames.

THE COLD FRAMES.

We will tell you what we ourselves are doing in the matter of cold frames, and that means that it is the proper thing to do so far as we know. We have had our fixed frames and hot bed pits repaired and painted with brown metallic, and now we are busy repairing the sashes. The frames want to be tight all around, the upper edges perfect so that the sashes may lie flat upon them, and the rafters strong, sound at both ends and securely fixed in place. In the case of pit frames, sunk 18 to 24 inches under ground for

hotbed work, we have posts every three feet at back and front, and the rafters set between the posts where they also act as braces against the pressure of the bank of earth. In the case of frames that are not sunk beyond an inch or two in the ground, the rafters are light, dovetailed and made to set in or lift out at will.

Most of those used as hotbeds last spring have the old manure still left in them to keep them filled up, with four or five inches deep of loam on top of it. Into this we will now plant lettuces for hearting before Christmas, or in fact till March. We sow the seed out of doors, prick off the seedlings 2 or 3 inches apart into frames to be thinned or transplanted later on. But the plants now ready to set out are placed 7x7 or 9x9 inches apart for heading this fall. A sash or two of radishes are also sown. All this is in the old hotbeds, because the crops can be cut before we need the frames for the new hotbeds. When we do, we throw out the loam to one side, then the old manure, carting it to a pile in the garden, and fill up with fresh manure for hotbeds. But the larger and deeper ones of our last spring's hotbeds have already been emptied of the old manure, and the loam that was on the top has been thrown back into the bottom of the pits, and here we have planted chrysanthemums for November flowers, using young and short plants. They bloom fine in these pits too. And along the back wall we plant lemon verbena and rose and balm geraniums for cutting; in fact we can save them there as long as the chrysanthemums last. We generally have stevia in pretty fair condition up till the first of February, and this is done by keeping it in a cold pit and bringing it indoors as we want it. When too cold out of doors we put it into our pit for evergreen and half hardy shrubbery. As we don't take in the shrubs till November, the stevias can stay in the pit till then. By that time the earliest chrysanthemums in the frame are cut, so we throw them out and transfer the stevias to it, and cover them well, for a stevia cannot bear a breath of frost. The other part we may leave open and use as our earliest hotbed, the lettuce frames coming in next.

The ordinary cold frames are filled with permanent material, that is, plants that require the room all winter long. These are pansies, violets, daisies, forget-me-nots, anemones, Canterbury bells, polyanthuses, and any other odds and ends of barely hardy plants or those of uncertain nature like Japan anemones and montbretias, also young plants recently raised from seeds or cuttings, and which are more likely to be safe in the frame than in the open ground over winter. Divide these into two sets, namely those for blooming in the frames, as violets, polyanthuses, pansies, daisies, anemones and forget-me-nots; keep all these next to each other in the frames so that the same course of winter treatment may serve them. The other set consists of young pansies, daisies, forget-me-nots, Canterbury bells, montbretias, snapdragons, and other young plants to be wintered over and planted out of doors in early spring. They won't need nearly so much attention as the winter-blooming plants will; in fact, in severe weather we can leave them covered up for weeks at a time, providing field mice don't get near them, with perfect safety. And if you should like to have some real good hyacinths, narcissus and tulips in early spring, plant some bulbs in the cold frames devoted to winter flowers. They will bloom from February till April according to treatment. And let us urge upon you to try some lily of the valley. Go out into your own garden wherever you grow it and dig up a lot of clumps of it and plant it in the frames; by a little humoring as regards freezing to rest it, and then keeping it warm after the hardest of the winter is past, we can have fine lily of the valley in April with us—the outdoor crop is a month later. This is very handy for Easter flowers.

These cold frames are in warm, sunny, sheltered places where they will get the benefit of sunshine in winter, and be protected from cold winds by contiguous buildings or fences, and where we can easily reach them all with a horse and wagon; this is a useful point, the handiness in getting manure and loam to and from the frames is always worth considering.

THE VIOLETS have been in the open fields over summer, and we are now lifting them, stripping them of any little side shoots or runners, and planting them in the frames and so that they will barely touch each other. We take the best of the little rooted side shoots and plant them 2 to 3 inches apart in a cold frame for stock next spring. They not only give us nice stock for planting out, but yield us a few very big violets in early April.

THE POLYANTHUSES consist of old plants kept over from last spring because they were fine varieties and only one year old then They were summered in the cold frames under a lath shading. We lift them now, break the ball a little and plant them again in a frame in fresh soil, about eight or nine inches between the clumps. This may be pretty close when the leaves begin to grow rankly in spring, but all we want from these is good blossoms and lots of them, and we get that. If we wished to let them develop themselves to their best we would lift out every second row of plants in earliest spring and plant it elsewhere. Our best polyanthuses, however, were raised from seed sown last spring and the seedlings planted out over summer in a moist border against the north side of a building. We lift these now and plant them in the cold frames for early spring blossoms. They also make the finest plants for transferring to the flower garden in spring. If you have a sash in a warm, sunny place and another in a cooler and shadier spot and covered up less in winter it will prolong the blooming period. Apart from the double-flowered primroses, which are multiplied by division, we propagate our polyanthuses and other primroses from seed every spring.

CROWN ANEMONES.—We raise the finest strain of the single-flowered from seed in spring and otherwise treat it like young polyanthuses, and lift and plant them in a cold frame now. In this way we get the good of their flowers in spring, and if we want them for outdoor planting they lift readily with good balls and transplant nicely. The "bulbs" are very cheap, and you can buy single or double flowered varieties at the seed stores and plant them now. Six inches apart is enough to put them in the frame. Indeed, we would rather plant them three or four inches apart, and if they grew well in spring lift out and transplant every second row and every second plant in the row left.

DAISIES.—We go around the garden now and pick up all that remains here and there of last spring's daisies, for they die out badly in summer, and plant them close together in one of the coolest frames. From now on they grow and wax strong, and before spring form a solid carpet of green. We then lift, divide, and transplant them out of doors for blooming, choosing a moist, shady spot for them. If wanted for blooming in the frame we give them more room, and keep them about as warm as we do violets; this hastens them into blossom.

PANSIES for winter blooming are now fine big plants from July sowings, and in bud. They are planted about four inches apart with the intention of thinning them when they begin to get too thick. For spring flowers seedlings of August sowings are pricked into the frames, in fact we have just sown a lot of pansy seed now for smaller plants for spring bedding. But so far as wintering pansies over in cold frames is concerned there is a good deal of waste energy. We winter them out of doors just as well as in frames. Make a bed 5 or 6 feet wide, rather high in the middle and rounded at the sides to throw off water readily, plant the pansies thickly in rows about 9 inches apart and let them alone till December. Then lay some branches, preferably of hemlock, spruce, pine, or other evergreens, all over them to shade them a little from sunshine, save them from searing winds, and gather and hold the snow about the plants. In the spring time, as soon as the ground is mellow, lift and transplant them wherever you wish to.

FORGET-ME-NOTS for blooming in frames should now be good plants. Treat them much as you would violets, only don't plant them quite so far apart, even if they must be thinned out later. Little seedlings two or three inches high may be gathered together and planted about four inches apart each way, for transplanting out of doors in spring. They may be treated in the frames like pansies. So, too, may snapdragon and white centranthus. In fact

WHITE CENTRANTHUS is one of the most generous early spring flowers we have. Set out some plants now in a frame, a foot apart, and in spring remove the sash, and leave them there to grow and blossom at will. They repay the trouble.

CHRISTMAS ROSES AND LENTEN ROSES are also fine in cold frames; indeed, while they may live out of doors in an east-facing exposure in a moist, slightly shaded spot, if we wish to get the good of their flowers we should give them the protection of a cold frame in winter. Then we can get the blossoms without a stain or break on them, and whenever they are ready to pick, something we seldom can do when they are growing out of doors in the open in the wind and snow.

MIGNONETTE.—Although we can not have it all winter long in cold frames, if we had a lot young plants of Machet now in 2½ or 3-inch pots and would plant them 8 inches apart each way into a warm cold frame we should expect to have a nice lot of mignonette up till Christmas.

PARSLEY.—We always sow our parsley for winter in a cold frame in summer, in rows. By timely thinning and cultivation we get fine strong foliage before winter sets in, and a good supply of parsley all through the cold season. We have got cover it up warm though, for it doesn't take very much frost to destroy parsley.

A LIFE MEMBERSHIP for its members is what the Society of American Florists needs to place it on a decidedly permanent footing. But let this life membership cost $25 or $30 only.

GARDENING

WILLIAM FALCONER, Editor.

PUBLISHED THE 1ST AND 15TH OF EACH MONTH
— BY —
THE GARDENING COMPANY,
Monon Building, CHICAGO.

Subscription Price, $2.00 a Year—24 Numbers. Advertising rates on application.

Entered at Chicago postoffice as second-class matter.

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All communications relating to subscriptions, advertisements and other business matters should be addressed to The Gardening Company, Monon Building, Chicago, and all matters pertaining to the editorial department of the paper should be addressed to the Editor of GARDENING, Glen Cove, N. Y.

GARDENING is gotten up for its readers and in their interest, and it behooves you, one and all, to make it interesting. If it does not exactly suit your case, please write and tell us what you want. It is our desire to help you.

ASK ANY QUESTIONS you please about plants, flowers, fruits, vegetables or other practical gardening matters. We will take pleasure in answering them.

SEND US NOTES of your experience in gardening in any line; tell us of your successes that others may be enlightened and encouraged, and of your failures, perhaps we can help you.

SEND US PHOTOGRAPHS OR SKETCHES of your flowers, gardens, greenhouses, fruits, vegetables, or horticultural appliances that we may have them engraved for GARDENING.

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TEAS' WEEPING MULBERRY TREE FOR AN ARBOR.—A correspondent has an arbor he wishes covered with trees or shrubs, and has used Lombardy poplars for the purpose, planting them on either side of the walk and training them over to form an arch. This has done very well where the trees kept healthy, but as several of them took fungous disease and died, or were so sickly looking that they had to be cut out, he asked us to suggest something that might answer better. We suggested Teas' weeping mulberry. He writes "I fear it would not reach the height required to pass over my out house.' The miserable low umbrella headed things we see in catalogues give rise to this idea, plants grown as indicated in such pictures are hideous abortions, and a libel on this striking if not elegant tree. The Dosoris plants are on their own roots and 20 feet high and still going up, with heavily leaved branches drooping to the ground.

ROSA LUCIÆ is now the proper name of what we have been callin; *Rosa Wichuraiana.*

XANTHOCERAS SORBIFOLIA.—This year's crop of seed is now ripe, and we have sent some of it to all of our friends who have asked for a few. If we have forgotten any of them, however, and they will please drop us a note reminding us of the fact, we shall be glad to send them a few seed so far as the supply goes.

THE FELLOWS OF THE ROYAL HORTICULTURAL SOCIETY, London. A question: Why don't you remove your secretary, W. Wilks, and as an officer forever more deny him admission in your body? Wouldn't this do you good, restore harmony in your ranks and inspire the confidence of the horticulturists of the world in your work? Isn't that Barron affair a disgrace to you? To the hidden hand in that business are you blind?

HEMEROCALLIS AURANTIACA VAR. MAJOR is the name of a new and very fine day lily recently discovered in and imported from Japan. The flowers are said to be six inches across and of a clear bright orange yellow color. It was named by Mr. Baker of Kew, and exhibited before the Royal Horticultural Society of London July last, when it was awarded a first-class certificate. These two tests are recommendation enough for most any plant.

POTATO BUGS AND PETUNIAS.—The other day when at Queens, L. I., we called on our good old friend Nicholas Hallock. All manner of crops had been good, except potatoes, tomatoes and egg plants, he had a hard fight trying to save them from the potato bugs, which are exceedingly numerous on Long Island this year. Still he was jubilant, for he had made a discovery. After the bugs had eaten up everything in their legitimate line of food they tackled his petunias eating the skin of the stems and branches more than the leaves, and it killed them. There they lay dead under the petunias in thousands. The food first stupefies them and they fall down and lay over on their back and kick and after a little while die. On returning home we examined our own petunias but there were no bugs on or about them, this may have been because we had lots of other food for them if they cared to eat it, and too, lots of Paris green if they dared to.

OUR THIS YEAR'S SEEDLING CANNAS are now in bloom and how fine and beautiful they are. Among them there are pure Mme. Crozys, glowing crimsons, handsomely spotted yellows, broad brilliant blossoms, and massive trusses. Surely we can name some of these, they are so sturdy, so free, so fine, so gay? Indeed we cannot, no, not one, for no matter how beautiful they are, there are already better varieties in cultivation than the best of our seedlings, and we may as well own up to it at once, than name a few and "send them out" and have the mortification of the public pitching them into the rot pile after the first year's trial. Let us be more discriminating in saving from our seedlings.

SPARROWS EATING SPINACH SEED.—From the middle of August through September we have a good deal of trouble with the European sparrow eating our seeds, especially spinach seed. But we get ahead of them in this wa : Before sowing the seed we put it into a bowl, let a few drops of linseed oil fall on the seed to make them, when well stirred together, a little sticky but not wet, then sprinkle some red lead or metallic over it and stir again. A very little will do, just enough so that every grain of seed gets a little. Then sow and cover the seeds as usual. The sparrows find the seed right away and commence to pick it out, but finding it doesn't agree with their stomachs they soon leave it in disgust and go to feeding on crab grass seed on the lawns, a diet we like them to indulge in.

"FLORAL EMBLEMS."—The editor of *The Independent* went to Boston with the Christian Endeavorers some weeks ago, and was charmed with the insignia and mottos of the society reproduced in flower beds on a lawn. He writes: "Every visitor to Boston during the late meeting of that society visited the Public Garden and saw these beds, prepared with great skill, and which certainly gave pleasure to ninety-nine out of a hundred of those who sauntered along the broad walk, on either side of which they were displayed." And he adds: "But we are told that we ought not to like to see them, that they are unnatural, 'horticultural abominations,' 'vulgar' examples of 'bad taste.'" And remarks: "Perhaps so, * * but we would like to know why. The common taste approves them, the taste of common people for whom they were made, the people who pay the taxes. * * This ought to be some reason for providing them. It is true they are not naturalistic; but what art is? What is a Bon Silene rose but a brier made unnatural? What is more unnatural than the specimen chrysanthemum? * * People like it, and always will like these effects; and it is of no use to fight against their taste, which is not false, even if there be a higher taste. * * The Boston Public Garden is a small, level plot, admirably adapted along the sides of its straight, wide, central walk, for the most formal and elaborate effects; and after seeing the beds prepared to please the Christian Endeavorers we declare that they were pleasing to a catholic taste *that is cultivated enough also* (the italics are ours.—ED.) to appreciate the style of the Arboretum; and we are sure that the visitors will long remember the little Public Garden and its floral emblems and mottoes with justifiable pleasure."

GROWING MUSHROOMS IN EARNEST.

Mr. W. H. P. Barley of Detroit is one of the most energetic, progressive and business-meaning mushroom growers in the country, and he makes it pay. In fact he assures us that he can make money growing mushrooms at 25 cents a pound. Not only has he a large mushroom growing establishment a few miles from Detroit, but a year ago he started another plant on Long Island. His Long Island houses are wooden above-ground structures, 50 feet long, 12 feet wide, 7 feet high, with tiers of beds, one above the other. Last winter he had only seven of these houses near New York, but so well have they served him that he has just completed his twentieth one. His Detroit houses are sunk 4 feet under ground level. Not only will he continue to run both establishments, but he is considering erecting a plant at one or two other large distant cities. While manure is easily obtained in New York, being handled so systematically by manure agents, it costs more than it does at Detroit or some other large cities, where the gardener buys it direct from the stable and hauls it home himself. And in the east buildings cost far more than in the west; the price

of lumber in New York is much higher than in Michigan. His Detroit houses are built of pine, but his Long Island ones are of hemlock. Mr. Barley is the nephew of the late Mr. Pocock (whose garden was between Kew and Mortlake), one of the largest and most successful of the market gardeners of London, and market gardening runs in the family, it having been their avocation for many generations back.

GARDENING AS A BUSINESS FOR LADIES.—But who runs the Detroit establishment while Mr Barley is building and starting this new set of mushroom houses on Long Island? some may ask. One of his sisters. And he has another sister with him now and she knows more about growing mushrooms than any other woman we have ever met. They are educated, refined young ladies, and it is a real pleasure to see how interested and active they are in the business, and how systematically they conduct it.

The Fruit Garden.

GRAPES, ETC.

During the past ten or more years I have given, in an amateur way, considerable attention to the cultivation of grapes in the open air and under glass. Our collection, hardy in the open, covers more than sixty varieties, and we have eight foreign kinds under glass in a cool house. Have been fairly successful with them. Last year all our hardy grapes in the open air ripened, this is something unusual as our collection covers so large a variety. Commonly not more than two-thirds of them would ripen.

The season was particularly favorable for grapes, dry and warm. You will recollect our location on the highest point of land in the University City, nevertheless only 70 or 80 feet above tide water.

I have been taught by observation that it is absolutely necessary to have complete drainage for grape vines both in the open and under glass.

I have never used any poisonous liquid preparations

We distribute occasionally on the foliage with pulverized sulphur only. With us it has been satisfactory, and up to date the foliage is in a healthful condition with the exception of two or three varieties of Roger's Hybrids which present slight mildew, but not enough I believe to prevent the fruit from ripening, as the wood is well ripened. Another important factor for our hardy grapes is to take the canes from the trellis early in November after the foliage has fallen and prune and cover them with earth for winter protection. Notwithstanding the fact that they are supposed to be *hardy*, I find from past experience for several years an advantage in doing so.

The wire trellis they are grown to is 6 feet high with four horizontal wires attached to posts and runs north and south. I prune the canes before covering them, cut out old wood, leaving 4 to 6 canes 2 to 3 feet in length for next year's fruiting on each vine.

With regard to foreign grapes, I have never failed in the past twenty years in ripening a crop in a cool house. No artificial heat except the glass. The varieties grown are Black Hamburgh, Victoria Hamburgh, Muscat Hamburgh, Golden Hamburgh, Wilmot's New Black Hamburgh, Muscat of Alexandria, Lady Downe's Seedling and White Chasselas. I was told it would be in vain to attempt to ripen Muscat Hamburgh without *heat*, but this is a *fallacy*, for I have ripened it perfectly for several consecutive years and it has been pronounced by experts of excellent flavor.

Have been careful to have drainage as perfect as possible under both hardy and foreign grapes, and will add that the borders both inside and outside of the grape houses are two feet above the grade of the ground immediately surrounding the outside grape border and house.

Our fruit in general never appeared more promising than now with the exception of apples—it is not the bearing year consequently we have very few. The trees are abundantly furnished with bloom buds, however, and next year we may as heretofore expect an abundance.

BENJAMIN G. SMITH.

Cambridge, Mass., Sept. 4, '95.

FRUIT NOTES.

WE have had a fairly good fruit year, pears are especially a heavy crop, but as usual a good deal of fruit is falling now.

OF APPLES I like Red Astrachan, Williams' Favorite and Early Harvest as early varieties; Maiden's Blush and Gravenstein to succeed them; and Baldwin, Spitzenberg, Northern Spy and Rhode Island Greening for winter. What falls on the ground now we rake up and throw to the hogs, or gather and press for cider vinegar. There is no use trying to keep them, for fallen summer or early fall apples, or hand-picked ones for that matter, won't keep well. I let the late fall and winter apples stay on the trees as long as possible, even a little frost won't hurt them. When we pick them we lay them on the barn floor or elsewhere where they will be dry, every kind by itself. In storing them away over winter the usual method is to barrel them up, head the barrels and lay them on their sides in a cool, airy frost proof cellar, but I prefer storing them loose in bins or shelves in the cellar. Before storing them we sort them over, picking out and discarding every specked, bruised and inferior apple, then set them on shelves, tiered one above the other inside along the cellar wall, and if need be also in the middle of the cellar. The apples need to be looked over every now and again in winter to remove any that are showing signs of decay. There is one winter apple I forgot to mention, namely, Jonathan; it is splendid for baking.

PEARS.—As we have such lots of berries when the early pears as Doyenne d'Ete, Osband's Summer, Giffard and the like are ripe I begin with Clapp's Favorite, a very large, red cheeked, handsome fruit, which, if gathered two weeks before it is ripe, is really a fine juicy fruit. Bartlett succeeds it and is excellent for dessert or canning. While Flemish Beauty may crack with you it does fine with me and is one of my standard sorts, so is Louise Bonne de Jersey; and I find Seckel, Lawrence and Winter Nelis are capital pears to have, the trees healthy and free bearing, and the fruit fine to eat. I prefer standard trees by all means; while the dwarfs are good enough on good land I find that they are more susceptible to blight than the standards. Don't let any of the pears ripen on the trees, always pull them before they are ripe and spread them on the shelves in your cellar, keeping them dark. Eat them up as quick as possible, for early or second early pears won't keep long.

I like to manure and cultivate the ground about our fruit trees and keep it clean. We do a little pruning every winter, and remove all suckers and diseased branches. GEORGE DONALD.

Fairfield, Conn.

The Vegetable Garden.

THE VEGETABLE GARDEN.

Keep the celery on the jump, and lots of water is what will do this. If your cabbage or cauliflower wilts badly in the sunshine it is a sign that they are clubrooted, when you may as well pull them up and feed them to the pigs or cow. Thin out young beets, turnips, and carrots to give them a good chance to bulb up before cold weather comes. Sow some winter radishes. The roots will be small but tender. Strew some tobacco stems under and about the cucumbers to kill or dispel the aphides that are apt to infest them at this season. Gather lots of half ripe Lima beans for use in winter. They are better than hard ripened ones. If your onions are ripe get them out of the ground, dried and under cover. Plant out young lettuces, and make a large sowing of some of the small hard hearting sorts for storing in cold frames. Sow some spinach for use this fall; and in a week or two, a patch for winter use. We let it be near the end of the month before we sow spinach to come in in spring. About the middle of the month or earlier north of here sow a patch of German kale for greens in spring. Have cold frames handy to set over some snap beans and tomatoes in case of an early frost. Keep the hoe at work both to clean the ground and unfasten it about the plants if you wish to keep the young crops in brisk growth.

Insects.

A SCALE INSECT ON OSAGE ORANGE HEDGE.

X., South N. J., writes: "I have an osage orange hedge three years old that had grown to a fine size and seemed very thrifty. Last year I noticed a white cottony looking stuff on the branches, invisible except when you parted the leaves and looked in. This year there is quite a leafless gap in one place and the white growth is thick on the branches. I send you a sample of it. I hope you can tell me what it is and what I can do to prevent my whole hedge being ruined."

The scale, of which examples were sent with above, almost completely cover the piece of twig and leaves sent was described many years ago as *Pulvinaria macluræ*, but is now referred by many writers to *Pulvinaria innumerabilis*—the common maple tree scale insect. When left to multiply it may become very destructive, and therefore effort should be made to destroy it at its first appearance.

Its presence is readily detected by the cottony mass thrown out from the lower end of the scale at the season for reproduction, in which are contained hundreds of eggs. This is a favorable time—if not largely distributed—for going thoroughly over the infested plants with a thick soft mitten so as to crush the eggs. A large proportion may be destroyed by this means. Two or three weeks later those that escaped will have fastened themselves to the plant as small scales. These may be killed by sprinkling or spraying with a strong kerosene emulsion, or with a solution of a quarter of a pound of whale-oil soap in a gallon of hot water applied at a temperature of about 100 degrees Fahr. Later in the season the scale has matured and is more difficult to kill. During the winter a wash as strong as

one gallon of the soap to one gallon of water could safely be used, and this might serve to kill the scale. Scales have different resisting powers which can only be definitely learned by experiment. The winter wash for the San Jose scale on pear and other fruit trees is two pounds of the soap to a gallon of water.

J. A. LINTNER.

TO KILL RED ANTS IN THE HOUSE.

L. S. E., Rochester, N. Y., writes: "As a diligent reader of GARDENING I am a believer in your practical knowledge of all things pertaining to any branch of gardening, and I venture to ask, is there anything that will exterminate red ants in a house? We have them even in winter, and have tried everything, even corrosive sublimate, which simply drives them away, and they appear in some new place. We have a great deal of ampelopsis on the house, and it has been suggested that this brings them. Is that possible?"

The little red ants that are so great a pest in many houses usually have their nest somewhere within the house or adjoining premises. If they can be traced to the nest, and it is accessible, the termites can all be destroyed by pouring in an ounce or two of bisulphate of carbon. This is the best remedy, and a simple one, when the colony is located in the yard or garden; but when, as often, they are established within the walls of foundation of the building, other means must be resorted to for their destruction. Various baits are used for this purpose. It is stated on good authority that maple syrup with which some London purple (an arsenical poison) was mixed in a low dish not only killed large numbers, but prevented the recurrence of the pest for a long time thereafter. In a newspaper slip before me the following is recommended: One spoonful of tartar emetic and one spoonful sugar mixed into a thin syrup; it relieved the house at once from their presence. An old and popular remedy is dipping a sponge in sweetened water and placing it in their haunts; when they collect therein the sponge may be dropped into hot water. A few repetitions of the last is usually all that is necessary; the intelligence of danger or disaster seems to be rapidly communicated from one to another, and safer quarters are sought for by the colony. A broad chalk-line is an effectual barrier for many species of ants by the aid of which preserve jars or special shelves in closets may be protected. J. A. LINTNER.

[No, we do not think the ampelopsis vine on the house has anything to do in attracting the ants to it.—ED.]

WORMS IN THE LAWN.

North Toronto writes: "I have a lawn which is infested with fish-worms to such an extent that the surface is covered with the small mounds of earth thrown up by them. As I wish to use the lawn as a tennis court, what can I do to get rid of them?"

There is practically no sure remedy. The worms in the ground must be killed and the earth rendered uninhabitable to others. Fresh air-slacked lime is the best thing we have tried for it. Rain draws the worms to the surface of the ground, so does darkness. With this in mind, some evening when it is raining take fresh air-slacked lime and sow it—enough to barely whiten the ground—broadcast over the lawn; the rain will wash it in, and pity the worms its caustic touch

[CONTINUED ON PAGE 14.]

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reaches. This may have to be done several times a year. But too much lime is injurious to grass and earth. Instead of liming the lawn at night and in wet weather you may do it any time, and with the aid of hose or watering pot wash the lime into the ground; or by doing it immediately before a rain, let the shower do the work and not the hose.

THRIPS IN A VINERY.

E. G., Hastings, Mich., writes: "I have a grapery under glass for the last six years. This summer I am troubled with a little brown insect some call thrips. It appeared in June and July, attacking the leaves and destroying them almost entirely, so that new shoots have begun to form. What remedy is for this insect?"

Tobacco kills it. Shut up your vinery tight, then in the afternoon fumigate with some very strong, pungent tobacco stems. Remember that overheated tobacco, as when the stems get aflame, will destroy the leaves as well as the thrips. If you know nothing about fumigating make a few heaps of slightly damp tobacco stems on the floor, say half a peck in each, and set them a fire, keeping them smouldering but never let them flame up. The house should be filled full of smoke in this way. Next morning give the vines a good hosing or syringing. You have got to repeat this fumigating say two to three times a week for two weeks or more to destroy them in your vinery now that you have let them get such headway. Dry, fresh tobacco powder or Scotch snuff dusted all over the vine leaves with a powder bellows, when the plants are wet, will also aid you in combating the thrips, but you have got to keep it up. To clear a badly infested house of thrips is a hard matter. Although the evil is nearly over so far as the grape vines are concerned this fall, if you are going to winter other plants in the house, better get rid of the thrips before you take in the plants. Next spring begin in time. Before your vines break into bud strew a lot of fresh tobacco stems in your vinery, and remove these and introduce a fresh lot every fortnight, no matter whether you see a thrips or not, for prevention is better than cure. Sprinkle the tobacco in the morning so that the warm sunheat will cause an evaporation from it whose pungency will make you sneeze. Thrips or greenfly can not live in such an atmosphere as that, but it hasn't the least injurious effect upon mealy bugs, red spider, or scale, they are invulnerable so far as tobacco in any form is concerned. Thrips in vineries are usually introduced from other plants, as azaleas, pellæa ferns, etc.

Miscellaneous.

THE JAPANESE MORNING GLORIES.

As we promised, page 371, we sent our correspondent some of the leaves. He writes:

"The box of Japanese morning glory leaves reached me this morning. I have them now spread out before me on my desk, and I can assure you my astonishment and admiration are great. I have just such an exposure on my front piazza as you suggest for growing them, and I hope to have there a display next year which will be the envy of all my neighbors. I also bought some *Ipomœa marmorata*, and while the flowers of the latter are very large and beautiful, far superior to the ordinary morning glory, the leaves are not marbled at all."

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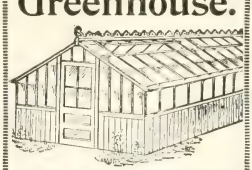

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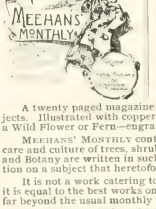

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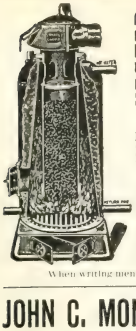

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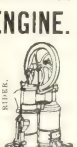

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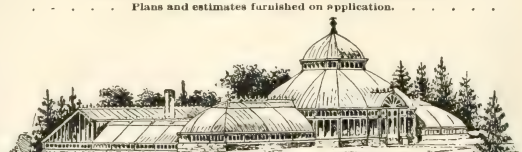

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GARDENING

Vol. IV. $2.00 A Year. 24 Numbers. CHICAGO, OCTOBER 1, 1895. Single Copy 10 Cents. No. 74.

ORCHIDS IN THE CONSERVATORY OF MR. E. G. UIHLEIN, CHICAGO

The Greenhouse.

AN AMATEUR'S ORCHIDS.

The group of orchids shown in our illustration is from the collection of Park Commissioner E. G. Uihlein, of Chicago, the possessor of some of the choicest specimens in that city. Mr. Uihlein's place shows what may be done with a city lot; he has a pretty little lily pond in front of his conservatories, a vine-clad rustic summer house, velvety lawns and a showy array of bedding plants.

The orchids, which are a special attraction, occupy a good deal of space in the conservatories. The picture shown was taken in the display house, which is brilliant with bloom at all seasons. The picture shows in the foreground a group of cypripediums, including some choice specimens. *C. Parishii*, in bloom at the present time, is particularly beautiful; it has broad, greenish white sepals, hanging petals four to five inches long, beautifully undulated, the lower half deep purple; lip yellowish green, sometimes tinged purple. *C. chlorops* is noticeable for its delicate lettuce-green tinge. *C. amandum*, green, spotted with black, the petals ochre tinged with brick-red, and *C. Lawrenceanum marmoratum* are also noticeable. *C. insigne* is seen in many varieties. But the collection is not confined to the lady's slippers; a number of odontoglossums are coming on, among them the baby orchid, *O. grande*. Of oncidiums *O. crispum*, rich bronze and yellow, and *O. Jonesianum*, waxen white dotted with bronze, are blooming, and also several schomburgkias. Several varieties of phalænopsis are showing bloom, and there is already a fine display of the noble *Cattleya labiata* and *C. Bowringeana*. Most of the winter-blooming orchids show a tendency to bloom earlier than usual this season; there is little doubt that the excessive heat and dryness of the past summer has hastened ripening of the growths.

All the different varieties of orchids grown by Mr. Uihlein are treated to similar conditions, being kept in the

warm growing houses until they bloom, when they are usually removed to the display house. Mr. Uhlein has a nice little collection of the East Indian pitcher plants (*nepenthes*) which are in unusually fine condition; they are kept in a compartment divided by sliding doors from the main house, requisite moisture being supplied by an open tank at the bottom. Some of the finer alocasias and anthuriums luxuriate under the same treatment.

Among newer plants the pretty little *Saintpaulia ionantha* has bloomed very freely, and the purple-leaved *Strobilanthes Dyerianus* has proved a valuable bedding plant, making a fine effect all summer. It will be used for color effect indoors during the winter, together with foliage begonias fittonias, wandering jew and similar plants. E. T. R.

THE GREENHOUSE.

All warm-greenhouse plants should now be under glass. These include fancy-leaved begonias, banana and rubber plants, tender palms, and the like that may have been massed out of doors for subtropical effect in summer, or placed outside for their own good. If they had been plunged in their pots the change to indoors will hardly show on them; but if they had been planted out and had to be lifted, reduced and potted, they are apt to lose a good many leaves, even if kept moist overhead, and a little close for a time.

Ordinary greenhouse plants, such as bouvardias, carnations, stevia, genista and the like that have been lifted and potted, if not yet indoors, should be all neat, clean, convenient and ready at a moment's notice to rush indoors at the first appearance of frost. While some plants, as azaleas, carnations, geraniums, freesias and obconica primroses may not show any signs of injury if a slight frost should overtake them, others, as callas, marguerites, stevias, heliotrope, nasturtiums and cinerarias are injured by the least touch of frost. Be on the safe side, however, and don't let frost catch any of your pot plants out of doors.

At this time of year greenhouses need very little shade. Ferns, most palms, fine-leaved plants like marantas, alocasias, begonias, colored dracænas, pitcher plants, and screw pines should get some; but crotons, ficus of sorts, allamandas, ixoras and the like among the warmer plants, and carnations, chrysanthemums, stevias, heliotrope and geraniums need no shading. Cinerarias, calceolarias, obconica and Chinese primroses, however, we find prefer a little shade even if they require cool treatment.

In the case of established well rooted greenhouse plants, from now on till midwinter, is the time to economise in the way of fire heat; plants naturally are now becoming inactive, and encouraging them in this rest is assisting nature for a better growth next year. But don't let the temperature get too low, or the atmosphere raw or chilly. Ventilate early in the forenoon, and a little at a time; and shut up early in the afternoon and a little at a time, being sure to shut up soon enough to keep in considerable sun heat. In wet, raw, or chilly weather have a little fire heat to warm and sweeten the atmosphere, even if ventilation has to be given at the same to keep down the temperature. Water all free-growing plants plentifully. Whatever syringing overhead is done should be given early enough in the afternoon to allow of the foliage getting quite dry before night. Don't wet the plants overhead in wet weather, rather increase the fire heat and give a little ventilation, and in the case of the warm houses moisten the floors and benches if need be.

Fancy-leaved caladiums may now be laid aside where they will be dry and warm; let them stay undisturbed till potting time next winter or spring. Store gloxinias in much the same way, or, if you need the pots shake the "bulbs" and store them close together, and one deep, in wooden flat boxes with a little sand or loam under and over them. Don't let them get too dry in winter. Be sure to label the achimenes, then cut them over and store them anywhere where they can be kept warm (50° to 60°) and dry over winter; if kept reasonably cool they remain longer in spring before starting into growth. Amaryllises and crinums that have been growing all summer may now be kept dry to remain so for some months.

While we are very glad to have the allamanda and clerodendron vines in bloom at any time, about this time of year when we are crowding the greenhouses with other plants, we usually lessen the water supply to these vines, and head them in a good deal, keeping them rather dormant till spring.

Cinerarias, calceolarias and Chinese primroses are now making good growth and should be repotted as often as they require it; keep them cool but away from frost, and give them lots of water. We like 4 and 5-inch pots for *Primula obconica*, and get more flowers proportionately from these sizes than from larger ones.

In order to get fine, full flowers of chrysanthemums we must disbud them, that is remove all the little, deformed and side buds on a shoot, retaining one plump, perfect bud to each; also pinch off all unnecessary bottom and stem side shoots. We aim to get fine succulent foliage and large flowers, and remove everything else in the way of supernumerary buds and laterals. And in order to have the finest carnations and roses we do much the same thing in their case, especially as regards disbudding the flower buds.

KEEPING MUSA ENSETE OVER WINTER.

G. H. S, Woburn, Mass., writes: "I have an Abyssinian banana (*Musa ensete*) plant in my garden with leaves eight feet long. Can I lift and keep the root over winter so that I may have the plant in my garden again next summer? It was raised from seed sown last winter."

Perhaps you may. Cut down all of the leaves to within four feet of the ground, then dig up the plant very carefully securing as many unbroken roots as possible; then pot it into a large pot, or better still, into a nicely cleaned iron-hooped butter tub. Water it well at the root, and sprinkle the top overhead once or twice a day for a time, but if any water lodges in the sheaths of the leaves dump it out, for if left, it may cause rot. Now winter the plant in a light warm cellar. A breath of frost is injurious to it. Overwatering will rot it. Cut away all decaying parts as they show themselves during winter. Had your plant been an old root bound specimen before being set out its chances of surviving the winter would be greater than in the case of a young seedling that never had any restricted root growth. Had you a greenhouse you would have very little trouble with it. In fact when you can get up such a fine specimen in one year from seed we are not sure that the old plant is worth saving. This seems hard advice in view of the fact that we can take up and treat all the sprouting bananas, like *sapientum* and *chinensis*, with most as much freedom as we would bulbs or tubers, but we cannot do this with *ensete*, *superba*, and non-sprouting sorts like them.

CARNATIONS IN WINTER.

Please give me some information about raising carnations for winter blooming. I have tried to have them but meet with no success. Do they need much warmth and sunshine and water, and what kind of soil? MRS. S. H. MILLER.

Suffolk Co., N. Y.

Carnations for blooming this winter should be one year old plants, that is plants that were propagated from cuttings last winter or spring, and planted out of doors over summer, then lifted and potted or planted on greenhouse benches in August or September, or even in October. If you have plenty greenhouse room planting them on a bench is by far the best way; if you have only limited greenhouse space, or no greenhouse at all, then you must grow them in pots. Plants grown in the open ground without any preparatory treatment for lifting will now be in full bloom and full of flower spikes; this is a bad condition of things for lifting, they should have been kept pinched in at least till August so as to make them short stocky plants, which when lifted and potted carefully would not wilt. If they have not been so prepared cut back all the most advanced shoots. Lift the plants with big balls of earth to the roots, then slap the earth away gently so that it may drop off without tearing the roots; when the ball is reduced enough to get it comfortably into a 6-inch pot pot it, using a rich fibrous loam with some well decayed manure mixed in with it and a sprinkling of bone meal if you have it handy. The pots should be clean and well drained. Pot firmly. Put a neat short, strong stake to each plant at potting time to tie up the flower spikes to. Place the pots out of doors in a sheltered, slightly shaded spot for some days till the plants recover from the shock of moving and start making new roots; water them moderately at time of potting and sprinkle them gently overhead two or three times a day for a while to keep them plump. While a slight frost may not hurt them it does them no good, and we should try to get our carnations indoors before frost touches them. But while this is good practice as regards the greenhouse it regards modification in the window. Rather than bring them into the window the first of October to keep them there, we would keep them out of doors as long as the weather would permit, setting them in on the piazza away from frosts, high winds and cold wet storms, taking them indoors permanently when the weather became too unsettled to trust them outside. Never let the carnations get quite dry, and don't drench them, but keep them fairly moist at all times. They like a sunny window in winter and fresh air every day. A hot, close, stifling atmosphere is hurtful to them, for they are cool loving rather than heat craving plants. A greenhouse temperature of 50° to 55° at night with a rise by sun heat of 10° to 20° in the day time suits them nicely; but in the dwelling house the minimum may fall as low as 40°, and the plants do well.

CARNATIONS, KEEPING THEM OVER FOR NEXT YEAR.—H. C. B., New York, writes: "I have quite a number of the newer

A BASKET FLOWER BED AT EGANDALE

varieties of carnation pinks in the open ground in my garden which have bloomed nicely and are now quite well set with buds. Can these be lift d and put in boxes and set away for the winter and be planted again in the spring. Will they be worth the trouble?" They can be so treated, but it is a question, will they be worth the trouble. Enjoy them as they are as long as you can, then cut down the healthy small plants, that is cut all flower shoots hard back to the crowns, and crop in the rougher leaves, then lift them carefully and transplant them into a cold frame as you would pansies or violets and close enough to barely touch one another. Give them the same protection you do to your violets over winter, and in early spring transfer them to the open ground. If you mean to box them and winter the boxes in the cellar, the thing is apt to be more difficult and less satisfactory. At any rate cut them down well at lifting time, preserve their roots as well as you can, don't overcrowd them, and don't try to bloom them in winter except in a light window or greenhouse.

FANCY-LEAVED CALADIUMS, CUTTING THEM DOWN.—F. M. R., Cape May City, N. J., writes: "I have a very fine collection of these Should the leaves and tops be cut down now, or left to rot till they die down naturally?" The general practice is to let the plants get somewhat drier, then dry altogether before cutting off the leaves, indeed many excellent growers lay the plants past on their sides for the winter without ever removing the old leaves till they die off. But no harm can come from cutting the leaves back when they are fully matured and turning yellow. We have very few plants requiring as close attention to winter them well as these fancy caladiums, and we should humor them in every particular. It isn't enough to think that because we cut down big dahlias in the flush of vigor without impairing their tubers; or green-leaved caladiums, or tuberous begonias, even gloxinias, ipomœas, and many others, with no apparent injury to their tubers, that the fancy-leaved caladiums may be as submissive. But, really, much depends upon the grower; a man who understands the whole routine can do many things with a plant with perfect safety that might be unsafe in the hands of a less experienced person.

SULPHURET OF POTASH.—In your issue of Sept. 15, under the head of chrysanthemums, a correspondent names sulphate of potash as a remedy for mildew. This should read sulphuret of potash; the sulphates are not fungoid destroyers; the sulphurets are. One of the easiest ways of preparing this is to boil some lye from wood ashes with flowers of sulphur until it assumes a red-brown color, or as sulphuret of lime is preferable, sulphur and quick lime, one pound each to water one gallon, boil it out of doors until a red-brown and keep in a well corked bottle. A teacupful in three gallons of water goes a long way as spray.

E. CARTWRIGHT, M. D.

The Flower Garden.

THE FLOWER BASKET AT EGANDALE.

Flower stands on the lawn are of common occurrence, and if in keeping with their surroundings and of suitable construction, intelligently filled and maintained, they are allowable. Still that method of growing flowers, suspending them, as it were, between heaven and earth, is unnatural; but, being the fashion, we may follow it. Even then we must be careful what we use and where we put it. In formal gardens, large rustic stands, vases or even hanging baskets may be used, but in departing from these forms one must use judgment. We grow flowers in the soil and admire them there. Primitive man did that, but the modern man goes further and places them in vases. This practice for centuries has so identified the flower with the vase that their association has become fixed and pleasing, and therefore allowable.

An unseaworthy boat is sometimes used on the lawn as a flower bed with direful effect. I never saw one yet that didn't have a dry-dock air about it. The plants seemed struggling to get out rather than up. There is no natural connection between a boat and flowers; their unison is forced, and therefore incongruous. Iron pots, hanging over a supposed fire, if situated on the wooded bank of a lake or stream and accompanied with a vine covered wigwam and other evidence of "camping out," could be used artistically, but after all it would only show what could be done, not what ought to be done. Rustic stands and iron vases are naturally formal in their appearance, and belong to formal surroundings. Formal gardens must always exist on very small places, as the limited space, bounded by rigid lines and sharp angles, seldom permit of any other style. In more extended areas, however, we are slowly drifting away from the formal and entering the realms of natural gardening Geometrical beds, clipped trees and sheared hedges are giving place to the tasteful and natural commingling of flowers and shrubs and the planting of trees for their untrammelled beauty. In my planting I have endeavored to follow the teachings of Robinson of England and Elliott of this country, and a formal vase or flower stand on my grounds would be as much out of place as a wash tub in a parlor, even if the hoops were gilded and the soap-suds made from Cologne water. To introduce such a glaring example of a set piece into my grounds would be as painful as a sore thumb and as much in the way. Still I wanted to be in fashion, and grow some flowers "above ground." What would be suitable? One day my gardener was transplanting some China asters in bloom to fill up a gap in a flower bed. He carried them in his weed-

ing basket, and set it down on the lawn near a bed. I had seen that basket so often filled to the brim with plants and flowers that they seemed intimately associated; it seemed natural to have flowers in that position, then why not grow them there? That incident evolved the basket here illustrated. To set it out in the middle of the lawn would be fatal. It would not only interfere with the "unbroken sweep" of the lawn so essential, but would lose the sentimental connection between it and the flower bed. Sentiment and imagination are powerful factors in our enjoyment of flowers and their associations, and he who possesses these requisites in a marked degree and combines them with common sense is the one generally successful in floriculture. The basket should be placed near a bed of flowers, and then one can imagine that the gardener had set it down there, had heard his dinner bell (you all know how prompt he is, in that respect anyway), and while he was wrestling with gastronomic problems you are enjoying the flowers. Originally I made the basket *in situ* by inserting in the ground willow twigs and weaving between them, but being too busy in the spring I had one made of rattan. It is bottomless and placed directly on the sod, fresh sod replacing the injured spot when taken up in the fall. The basket somewhat approaches the form of a figure 8, being contracted at the center. The ends are higher than the sides are at the middle, and longer at the top than at the bottom. The top measurement is as follows: Four feet four inches long, two feet six inches at the widest part near the ends, and two feet at the middle. A strip of wood connects the sides at the bottom to retain the shape. The handle is two feet high. This abnormal height is necessary in order to carry it above the plants when at their maturity. It is composed of three pieces of rattan two inches apart, with split bamboos running zigzag across, forming a flat handle six inches wide. It is lined inside with coarse bagging to prevent the soil from washing out, and a good compost is put in, bone meal being freely used. The soil must be rich, as you want a luxuriant growth indicative of profusion, and at the same time be careful not to use plants so rampant in growth as to overrun everything and in time obliterate the form of the basket, and thus produce a meaningless mass towards the end of the season. The neatest plant I have found to climb up the handles is *Manettia bicolor*, one plant at the base of each handle. One plant near each end of *Solanum jasminoides* produces good "end effect." In the center of one end is used the yellow marguerite, which is inclined to be a little rampant, and requires pinching back if growing too strong. Some geraniums and lantanas in the center at the other side and at the edges are *Lophospermum* (Maurandya) *scandens*, climbing nasturtium, King William double nasturtium, lobelia, sweet alyssum and dwarf phlox. The vines are trained along the edges, and occasionally allowed to droop down. Early in the season dwarf phlox, pansies or any low growing plant are used between the others to cover the ground, and in time be overgrown. If the symmetry requires it I sometimes put in a canna about July 1. W. C. EGAN.

ENGLISH AND SPANISH IRISES.

C. W., writes: "I want to plant some English and Spanish irises, but don't know how far apart to put the bulbs. I see the florists quote them at a low rate; surely their bulbs must be small?"

No, they are regulation size, mature bulbs. These irises are strictly bulbous; they don't make a tuft like a Siberian, or Kœmpfer's iris, or spread on top of ground by a thick rhizome as the German iris does, and while they are exceedingly beautiful when in bloom the life of their stems and leaves is of short duration, not lasting through the summer. This being so it is better to grow them in groups in your borders or mixed beds where their beauty when in bloom will be appreciated, and where their disappearance soon after blooming will not make a discernable gap. Let the bulbs be 2 to 3 inches apart in groups of 6 or 10, and these groups as numerous as you care to have them. We grow them for cut flowers as well as for garden decoration, and in this case in rows, the bulbs being 3 inches apart and two rows in each drill. Have the drills 15 or 18 inches apart, and when the irises are cut plant a line or second-crop China asters in the middle between the irises. They are also good to plant among roses. Indeed a summer bed filled with these irises and tea roses fills up nicely, the irises come into bloom and are past before the roses grow so much as to need all the room; and when the irises are past they can be cut down without being missed, for the roses will have spread enough to fill up the empty space. But remember these irises are not cast iron as regards hardiness; mulch your beds heavily and spread tar paper or oiled paper over them to exclude as much wet in winter as possible.

QUESTIONS ABOUT THE FLOWER GARDEN.

F. N. B., Crown Point, Indiana, asks:

1. LILIUM AURATUM.—"An auratum with thirty-five well developed open flowers, with more to come!" Who ever heard of such a thing?"

The grower of that lily has sent us a photograph of it, wait for a few weeks and we will have it engraved for you, and tell you how he grows such lilies.

2. GLADIOLUS SAUNDERSII.—"Will it do better if left in the ground over winter than if lifted or stored? Woolson says it is hardy. When lifted the bulbs seem to grow weaker each year."

Ans. Lots of plants are hardy in N. J. that are not so near Lake Michigan. If it proves hardy in your garden, under a mulch in winter, by all means treat it in that way. But experiment with a few only to begin with. In saving the bulbs over winter don't let frost reach them nor wet, and be very particular not to keep them too warm. Where potatoes keep well is a good place for gladioli.

3. KEEPING BULBS IN SUMMER.—"When you say keep bulbs in summer in a cool, dark and dry place, do you mean on a table in the cellar or in the carriage house?"

Ans. In a cupboard in the cellar providing it isn't stuffy and mouldy is a good place. Anywhere where you can keep jam or other preserves in summer is a capital place for bulbs. A ventilated cupboard in the carriage house would be a good place, or any such place in a cool barn. But look out for rats as they eat tulip, crocus and some other bulbs. Don't put the bulbs in the attic in summer, as it would be far too hot for them.

BLISTER BEETLES ATE THE CLEMATIS.—"Our clematis this year, and for the first time, have been literally devoured by blister beetles. The Jackman type suffers only slightly, but the small flowered kinds have been injured severely, the *Flammula* especially; and the application of Paris green used destroyed the foliage as well as the beetles. Is there no application that can be used to kill the beetles that will not also denude the vines and discolor paint on buildings?"

Take an old frying pan, wash-hand zinc basin, tin milk pan, or other wide-mouthed shallow dish easily held in the hand, and put a little water into it, then about as much more of kerosene, the water is simply to give bulk of liquid, the kerosene floats on the surface and does the killing. Let one person hold the dish under the vine while another shakes the branches so that the beetles drop into the kerosene. Nothing can be easier to do, cleaner in handling or more effectual in destroying the pest. There is no use in mincing matters, this voracious insect cannot be gotten rid of without considerable trouble, and there is no spraying equal in efficiency to the kerosene bath, or so cleanly in its use.

KOEMPFER'S IRISES.

A western subscriber asks: "Can you find out for me the width of the strip of iron placed around the iris bed, see page 371, September 1. I have ordered the plants for such a bed, but had not thought of enclosing it. The information would help me greatly."

I used for my Kœmpfer's irises strips of galvanized iron about ten inches wide. Set on edge and sunk in the ground half way, it will have plenty of height for quite a little pond. I flooded the irises sometimes morning and evening, as the water seemed to sink into the ground very rapidly. The plants grew very tall indeed for irises, and never in the history of Bergen Point (my country home) had such wonderful size and markings been seen in these flowers. The pure white ones are the grandest, however, occasional feeding with weak liquid manure did not seem to go amiss, and may account for some of the success. The ground will have to be quite soft when the strip of metal is pressed into it, otherwise it bends by pressure, and there should be left a large lap where the two ends meet, or the ends should be fastened together in some way to keep the water from leaking through. This is the third year they have been in the same place, and I intend to leave them where they are for another year at least. L. C. L. J.

New York, September 19, 1895.

SWEET PEAS.

E. C. M., Falmouth, Mass., writes: "Give us some advice about sweet peas, telling us how to prepare the soil, how deep to plant the seed, etc. Especially can you tell us why at midsummer, after fine blooming, constant cutting and frequent watering, the blossoms suddenly begin to fail? Mine seem to blight at this time, many of them looking as if they had been nipped, their heads drooping. The vines also are thin and poor towards the roots."

Grow them in good land, somewhat level and moist if practicable. When the ground is cleared of crops this fall, say in November, give it a heavy dressing of rotted farm manure, and fork the ground two spits deep. Early next spring, just as soon as the ground can be worked, level it, line it off, unfasten the ground deeply along the row with a fork, then draw out the row four inches deep, and sow the seed. Don't cover the seed more than an inch deep, the working about the rows later on will gradually fill them in. Be sure that sweet peas are never grown

VINES FOR A NORTH-FACING PIAZZA.

on the same ground two years in succession. As soon as they come up in spring put stout long stakes or a six-feet wide chicken-wire netting trellis to them, and spread a mulching of old hay, straw, or rank litter on the ground on both sides of the staking or trellising. In dry weather water copiously, not a little and often, but a thorough soaking at a time and not frequent. The "nipped heads" you refer to is a very common disease in sweet peas and is especially noticeable late in the summer and the afternoon of or morning succeeding a very hot day. There is no help for it but to shade the vines from hot sunshine, and this is impracticable. The ill condition of the vines near the root is very common too, and due to some unfavorable condition of the soil, or situation, or cultivation. If possible shade the root ends from hot sunshine; this may be done by growing a row of edible peas or other tall crop on the sunny side but a feet away from the sweet peas.

VINES FOR A NORTH FACING PIAZZA.

In the enclosed photograph you will see a piazza with vines everywhere but where most needed, that is over the iron railing. This is a north exposure and we have not succeeded in making ampelopsis thrive there. Can you suggest some quick growing ornamental vine for the place? We do not care to have more aristolochia. L. S. E.

Rochester, N. Y.

Any vines you may use will interfere with the little flower border along the base of the wall by shading the plants there, also by drying and impoverishing the soil in it. But this by a liberal help of rotted manure in winter or spring and extra watering in summer you can largely overcome. Before planting any vines there be sure the soil is right; if it isn't real good, and deep, and wide remove it and replace with good soil. The filling in around the walls of houses is generally the sand or gravel that had been dug out of the cellar, with a thin coat of loam over it. If that is the case in this instance don't waste energy and patience trying to fertilize it; simply remove it and fill up with good soil.

We believe Hall's Japan honeysuckle would do well there. It would have to be supported by two or three wires run lengthwise along the wall but a few inches out from it till it got up to the iron railing. It would be permanent. The cinnamon vine (*Dioscorea Batatas*) should also do well there; but it would die down to the ground every fall and come up again in spring. It is fast growing and clean. *Clematis paniculata* would look well there. It is a rapid growing vine, looking fresh and green all summer, and lovely when in bloom in fall. To keep it neat and clean it may be cut down to the ground in winter as one would a phlox or delphinium; it will come up with increased vigor in spring and blossom of a certainty. But if you want something dainty and uncommon get a dozen strong tubers of *Ipomœa paniculata* and plant them there the first half of May. They grow fast, bloom from midsummer till frost, and the pretty rose purple or "eminence" colored blossoms are very attractive. While this is a tender plant it is exceedingly easy to grow and keep; all one has to do is cut over the stems at the ground, after frost has nipped them, and dig up the tubers and store these in a frost proof cellar as we would dahlias, taking no more notice of them till planting out time the next spring.

A very fast growing annual vine would be the variegated Japanese hop. Sow the seed in the border there. Its variegation is exceedingly clear and the whole vine thrifty. Although it self-sows itself extravagantly we never had any trouble in keeping it in check. No variegated leaved hardy vine is so effective in its way as is this hop.

OLD-FASHIONED FLOWERS.

B. S. P., Torega, Va., writes: "I have just purchased an old place in Virginia. I want to have next year a flower garden filled with old-fashioned flowers—plants not difficult to grow. Please give me a list of bright, sweet flowers."

Ans. By old fashioned we presume you mean the kind of plants cultivated in old gardens in the country, and what were grown by our forefathers generations ago. For instance, pæonies, irises, larkspur, Oswego tea, candytuft, day lilies, other lilies, and the like. Indeed these are all indispensable to-day, only we have improved some of them and added to the list. A proper selection should include vines, as clematis and honeysuckle, perennials, as fraxinella and columbine; biennials, for example hollyhocks and sweet williams; annuals, as sweet peas and candytuft; bulbous plants, like snowdrops and tulips; and water plants like nymphæa and lotus. But we will answer you briefly and in a general way.

VINES.—Hall's and Belgian honeysuckles; Flammula and paniculata clematis; capreolata bignonia, *Ipomœa pandurata*, and everlasting pea as perennials. Among annuals include nasturtiums, sweet peas, mountain fringe, common and Japanese morning glories, and the like.

PERENNIALS.—Snowdrops, crocuses, Siberian squills, chionodoxa, dog's tooth violets, narcissi of many kinds, bulbous corydalis, spring, German and Kœmpfer's irises, hepaticas, Russian violets, white rock cress, golden alyssum, spring adonis, bloodroot, bleeding heart, evergreen candytuft, doronicum, lily of the valley, creeping phlox, moss pink, Virginia lungwort, large white trillium, coreopsis, especially *grandiflora* and *lanceolata*, Oriental and Iceland poppies, long-spurred columbines, blue, red and yellow; herbaceous pæonies of many sorts and tree ones too; hybrid larkspurs, fraxinella, sea thrift, bell flowers including campanula and platycodon, day lily (*Hemerocallis*) early yellow, Dumortier's, tawny, Kwanso, and Thunberg's; spiræas of several sorts, upright white clematis, gaillardias, monarda, double and single pyrethrums, and in late summer *P. uliginosum*; pinks, lupins, monkshood, globe flower, pearl achillea, cat valerian, double flowered *Lychnis Viscaria*, the Pearl achillea, summer and autumn phloxes, plantain lilies (*Funkia*), the red heuchera (*H. sanguinea*), tritomas (hardy under a mulch) *Hypericum Moserianum*, butterfly weed (*Asclepias tuberosa*), the neater sunflowers, lilies such as *tenuifolium*, *Hansoni*, *elegans*, *auratum superbum*, tiger, and *speciosum*; panicled gypsophilas, several speedwells, yucca, hibiscuses of sorts, asters and boltonia, *Sedum spectabile* and *S. Sieboldii*, tricyrtis, mist flowers, Japan anemone, Pitcher's salvia, and many others.

BIENNIALS or plants usually treated as such—Foxgloves, hollyhocks, sweet williams, pansies, forget-me-nots, centranthus, poppies (sown in fall), etc.

ANNUALS.—Mignonette Chinese pinks, candytuft, nasturtiums, sweet peas, Drummond phlox, various poppies, balsams, stocks, China asters, verbenas, sweet scabios, sweet sultan, evening primrose, marigold, scarlet salvia, etc.

BITS OF EXPERIENCE.

RICINUS, or castor bean, that stood last year seven feet high, self-sowed, and stands this year over 15 feet. Several plants came up this spring where they stood last year.

PARROT'S FEATHER came through the winter in a diminutive pond drained dry and covered with boards and litter.

MY ZANZIBAR WATER LILIES, contrary to statements of some of our prominent seedsmen, form tubers identical in appearance with those of *Nymphæa Devoniensis*, and growing more vigorously than seedlings.

A PERSIMMON TREE set out in Novem-

ber, 1893, and showing no leaves during 1894, was cut down as dead last fall, but sprouted about the first of last July and is growing vigorously after twenty months of suspended animation.

PAWPAWS, usually considered so difficult to transplant, have done well with me, though, somewhat in the fashion of the persimmon alluded to above. H. J. F.

Warsaw, Hancock Co., Ill.

RENEWING AN OLD WEEDY LAWN.

A weedy lawn is to be plowed up this fall. The plan is to raise some vegetable crop for a year, so as to hoe out the weeds as they spring up, and then plant the grass seed. Should the manure be dug in before the vegetables are planted or at the time of sowing the grass, considering only the benefit to the lawn? Some of our neighbors have planted potatoes, manuring heavily, and the crop was a failure, owing to potato rot. Can you suggest a good crop for the purpose; or any other plan for making a good lawn out of an old one of about an acre in extent, with dandelions, mouse ear chickweed, mallows, sorrel, white weed, lysimachia and other unknown weeds. Wood ashes have been used as a fertilizer for the last few years. C. H.

Roxbury, Mass., Sept. 17, 1795.

For best results only one crop should be used; if several are planted some are apt to get neglected and weedy; and we haven't many crops that will occupy the ground all summer. There are corn, potatoes, onions, carrots and mangels; and it depends upon yourself whether or not the ground is kept clean. Corn will occupy the ground till the middle of September, potatoes till the end of August or into September, onions till September and carrots or mangels till November. So you see if you intend laying the lawn down in fall corn or potatoes, or onions would be the best crop to plant. But while this breaking up, manuring or cultivating of the ground for a year will enrich, enliven and sweeten it, it won't by any means clean it, for it must be full of the seeds of weeds lying there inactive waiting for an opportunity to germinate. The breaking up and continual cultivation for a summer though would kill out the old roots of dandelions, creeping chickweed, lysimachia, wild carrot, ox-eye daisy, sorrel and other perennial weeds, but it would be no safeguard against these same pests coming up from seed the next summer in the grass, no matter how many millions of them you may destroy in the year of the hoed crops.

We would manure very heavily for the cultivated crops. And if we didn't make the lawn till spring we would clean up and level the ground in fall, and if necessary add a broadcast dressing of well decayed manure, plowing it under. In early spring level off the ground smooth and sow the grass seed, and when the seed begins to germinate a slight top dressing of nitrate of soda will put vigor into it.

THE FLOWER GARDEN.

Get up and take indoors all the tender plants you care about. Don't wait till frost nips them first. Of all manner of bedding plants, such as geraniums, coleuses, alternantheras, ageratum, and the like, have a nice lot of cuttings put in and rooted, this will do away with the need of lumbering up the place with a lot of old plants.

Save all the seeds you want, and the sooner you do this the better the seeds are likely to be. Such seeds as zinnias, salpiglossis, nasturtium, scarlet salvia, small-flowered sunflowers, vincas, globe amaranths, verbenas, torenias, marigolds, gaillardias, sweet scabios, Vernon begonias, second crop coreopsis and cannas should be good and plentiful yet.

Clear away all rubbishy spent plants now in the beds or borders, dead or decaying plants are no ornament to a garden, far better have empty ground.

Give the dahlias lots of water. Even after the first nip of frost we often get many nice flowers from them. Tie up your cosmos plants if you would have them do their best; put a stout stake to each plant, then tie the main stems and branches to it. They are very brittle, and being so tall renders them an easy prey to rain and wind storms.

Don't bother saving old moonflower plants; young ones are easily raised in spring from seed. Put in a lot of cuttings of *Ipomœa Leari*, and let the old plants die. When cut down by frost cut over *I. paniculata* and bring the tubers indoors and treat them in winter as you would a dahlia. Dig up and top your gladiolus bulbs and store them in small bulk in cool but frost-proof places. Also get up the oxalis, bessera, *Milla biflora*, crinum, tigridia, ismene, and other tender bulbs and tuters you have in the ground, and carefully name and store each kind away by itself. The same with tuberoses, green-leaved caladiums, amorphophallus and other more tropical sorts except that they may be kept warmer than gladiolus in winter.

In flowers where the early flowering varieties of chrysanthemums blossom out of doors before frost injures them these plants should now be lifted and transplanted into sheltered warm spots, as against the south side of a fence or building, and freely watered overhead and at the root, and shaded a little if practicable.

The planting of spring-flowering bulbs is now in order. All varieties of hyacinths, tulips, crocuses and snowdrops that do well in the house or greenhouse in spring do equally well planted out of doors. More than that, many varieties that are hardly good enough for pot culture grow and blossom beautifully when planted out in the garden. If you want to fill your flower beds with hyacinths or tulips in set fashion, each variety all of a size and the plants exactly so far apart, then you must get good quality bulbs to insure evenness in size and opening; but if it is a gay ribbon, a brilliant and prolonged display you want, then plant common mixed bulbs, the hyacinths by themselves, the tulips by themselves, thickly and in a six or eight inch wide belt, and you are apt to have a fine display of gorgeous color from early till late, and it looks well. The polyanthus narcissus are not hardy on Long Island, but the single and double daffodils, jonquils and orange and sulphur phœnix sorts and their allies are, and everyone of them is both beautiful and desirable.

WINTER PROTECTION FOR SOME HARDY PLANTS.

I would suggest to Mr. Egan, page 4, Sept. 15, to try covering his plants of *Lobelia cardinalis* with sphagnum. Apply it, by way of experiment, pretty thickly to a portion of them and less on others. I have planted them out in fall and mulched with sphagnum in low moist land (both *cardinalis* and *syphilitica*) and had them go through in perfect condition. Many others of our seashore plants winter well in their native marshes, and sometimes get killed in cultivation, and if we look for the cause of it we shall find that nearly all of the marshes in which these plants occur are pretty well mulched in winter by the old stems and leaves of the native sedges and grasses, which they are mixed with in growth, and often by the fragments of coarse grasses which are washed in by the tides. We find

KOSTELETZKYA VIRGINICA the better for some protection when cultivated in upland, although it winters to perfection along our coast. Last fall, having a large lot of young plants, we protected a portion of them with a poor grade of salt marsh hay, such as is used for bedding, and after applying one load of this we used leaves and clippings of *Pinus rigida*. The winter proved very severe, and while those under the hay came out with very little loss, those under the pine boughs and leaves were badly killed.

Hammonton, N. J. WM. F. BASSETT.

LAVENDULA DENTATA is the proper name of the plant of which T. A. E. H., Kensington, Ill., has sent us a spray. It is a fragrant and pretty little shrub with rosemary-like leaves, and true lavender like flowers; but it is not hardy in our northern states. It is indigenous in Southwestern Europe.

Trees and Shrubs.

QUESTIONS ABOUT TREES AND SHRUBS.

F. N. B., Northern Indiana, asks:

1. HYDRANGEA PANICULATA VARS.—"In your remarks about these, page 357, August 15 last, you speak of the 'single' flowered forms coming in before and after *H. paniculata grandiflora* to extend the flowering period. But I cannot find them advertised by anyone."

Ans. Send to the Kissena Nurseries, Flushing, N. Y.

HYDRANGEA HORTENSIS.—"Why cannot it be grown out of doors if protected with leaves to keep out frost?"

Ans. So it can. But there is a point to be observed. It is easy enough to mulch so as to keep the roots and crown alive over winter, and sprouts will come up from the crown in spring and grow rankly, but they won't blossom. The flower bearing wood must come from the old wood and not from root sprouts, hence we have got to keep some of it alive; even if only one or two buds near the bottom of the main shoots survive in good condition the branches that come from those eyes should produce flowers. Cut the plants pretty well back, then tie the branches up close together; now mulch the ground quite deep with forest tree leaves, and place an inverted box or half barrel over the plant, and pile sedge or litter over the box, and see what success you will have.

3. HYPERICUM MOSERIANUM.—"Does it require shade, or will it do better in full sunshine?"

Ans. While we have seen it behaving nicely in open sunshine in level fairly moist garden ground, we believe it prefers slight shade and shelter, just as *H. calycinum* and *H. patulum* do.

4. SPIRÆA DISCOLOR VAR. ARLÆFOLIA.—"It does not succeed with me. Does it require special treatment and location?"

Ans. We don't wonder at that, for it is peculiar in its behavior, often dying down to the ground in winter. We find it likes good ground, good drainage and shelter, a mulching on the ground over

winter and a few evergreen branches about its tops. It acts as if it were tender. On the other hand we have had it as fine at Boston as we have on Long Island. Although a most elegant shrub when in bloom it is one that will always be a little uncertain.

5. A DOUBLE FLOWERING THORN, IS IT WORTH GROWING?—"I set out last fall a double flowering thorn. It is stationary—has only shoots from the main stem, some 8 inches long—and there are quantities of plant lice upon it, grey ones in a white dust, but they are not mealy bugs, more active. The bed was specially dug, filled with sods and is shaded slightly by trees Is the thorn worth bothering with? Will it bloom here? and when? and what treatment must it have? The scarlet thorn at the other end of the bed is doing well."

Ans. If the scarlet thorn does well with you there is no reason why the double flowered one shouldn't do well also. Wash off the lice, then spray the plant with kerosene emulsion; repeat this in a week. During the summer give the tree a thorough soaking of water, enough to soak the ground two feet deep, once a month, for a few years, till you get it into vigorous health. We have some young trees three years from the nursery that bloomed nicely last spring.

6. THE CHINESE TAMARIX.—"Our best *Tamarix Chinensis* happens to be growing just where one cannot enter the house without seeing it—certainly a happy situation for the daintiest of shrubs. Not having found it reliably hardy we cut off the wood last fall to about six inches from the ground and covered the crown with leaves and a box, and the result of this heroic treatment is a plant of perfect shape, some six or seven feet high and with plentiful spikes of the enticingly graceful pink blossoms."

Ans. Precisely what you ought to have done, and so far as the cutting down goes, what we do every year. The two species most common in cultivation are *T. Africana*, which blooms in spring on the previous year's wood. As soon as it is done blooming in June we cut back the shoots as close as we would in pollarding a willow; young sprouts soon shoot out and these are left for next spring's blossoms. The other species, *T. Chinensis*, blooms in August and September on the young wood. This we cut back in winter as hard as we do the African one in June. The result is a vigorous growth of long plume-like wands and dense neat shrubs all the time.

BAD YEAR FOR TREES IN NEW JERSEY.

This has been a season of disasters here, opening with late frosts, and these continuing until June, then came the tornado and hail on July 13, demolishing trees of all sizes, some at least two centuries old, and from this age down to babyhood. The hail cut and battered everything soft or at all succulent, and the scars on the bark of the trees left standing remind one of what might be seen after a battle in the wilderness. Many of my young grafted nut trees were broken down, and in one square of 100 specimen chestnut trees there is not one nut to be found this fall, although nearly all were loaded last year. But as this is but once in thirty years I trust that it will not be repeated soon. A. S. FULLER.

Ridgewood, N. J.

"MY CAMPERDOWN ELMS," says N. M. F., Oak Grove, Ill., "have a drawn and burned appearance in summer. The subsoil is clay. The trees appear to be healthy and the leaves grow thrifty, but soon present the above appearance. There is no sign of borers. Special attention is paid to watering. Can these trees be made to assume the perfect shape and glossy leaves of eastern trees?" The Camperdown elm should grow well with you. Why it doesn't is because of some local reason we do not know. In your clay soil is the drainage good? We should advise you to get Mr Egan, Mr. Jansen, Mr. Kanst, or Mr. Pettigrew to go out with you to your place some day; anyone of them could probably tell you in a moment what the trouble is; besides, they might give you a good many other useful points about your trees and garden that would be of service to you.

WEEPING PURPLE BEECH.—A reader writes: "My nurserymen write me that they have imported a few of these trees for two or three years, but have lost them all. They have never seen a specimen of it." There is a nice young specimen of it at Dosoris. It is as true a weeper as is the pendulous English beech, and the color of the foliage is the same deep purple of River's purple beech. It is a very striking plant and catches the eye of everyone interested in trees. But your nurserymen are right; it is a hard tree to import and make live.

A LOW HEDGE PLANT or border about the garden? B. S. P., Va. Box, *Berberis Thunbergii*, Japan quince var. *Simoni*. If *Abelia rupestris* is hardy with you (this you must find out from your neighbors) it would make a neat ever-blooming hedge; and if the variegated eleagnuses are hardy with you they would also have a neat uncommon appearance. They'd need a pruning in, though, after they become fairly established. A *Rosa rugosa* hedge would be pretty, but it spreads a good deal. Altogether the berberis may be the best.

E., CHICAGO, ASKS:—"Which *Euonymus* do you consider produces the most showy and handsomest berries in the fall?" The European (*E. Europæus*). The American, however, has also very showy fruit and surpasses the European in its finely tinted autumn foliage.

THE RUSSIAN OLIVE.—A reader asks, "what is it?" *Elæagnus angustifolius*. Being very hardy it is particularly useful in cold and exposed parts, as in our northwestern states.

Roses.

ROSES IN WISCONSIN.

There are very few roses that are reliably hardy here without more or less winter protection, and all are the better for it. A parti-colored rose which I learned to know, thirty years ago, as "Russell's Cottage" is as hardy as any; and Mme. Plantier is not far behind. *Rosa rugosa*, however, is absolutely hardy—needs no protection whatever.

The most vigorous growing rose in my garden is Mme. Chas. Wood. It blooms profusely in spring, and then goes entirely out of business. The most satisfactory of all the roses I have ever grown is Mrs. Degraw. It blooms profusely early and late; and there has not been a fortnight this summer in which it did not show bloom. This week (first week in September) I cut a stem with five blown roses and two buds on it. Three days after cutting, those blooms are still in good form, though standing in living rooms all the time. It is a beautiful rose, and needs very little protection, even in severe winters like the last.

By the side of Mrs. Degraw, stands Mme. Georges Bruant. It holds clusters of buds and white blossoms six feet aloft. One branch, last month, carried fifteen buds. The flowers often measure four inches in diameter, but are somewhat too loose and irregular. It is quite hardy, but killed back a little last winter for want of protection. It will bloom through October; and so will Mrs. Degraw.

With careful protection in winter, Hermosa gives me great satisfaction. It stands near to Mrs. Degraw in my esteem. La France, well protected, does finely in some seasons, but not always. To my mind, no rose is more beautiful than Mrs. John Laing; but I have not found it sufficiently vigorous and reliable for the sort of treatment which I am able to give.

Rosa multiflora is reasonably hardy, and gives much pleasure with its multitudinous clusters of single white flowers; though its season is lamentably short. I would not be without it. I have a plant of the Dawson rose which is a puzzler. It is at least four years old and of vigorous growth; but it has never shown a blossom. It went through two winters here without any protection. Last winter, I gave it protection for the first time, *and it killed back* within a foot of the ground. It has made vigorous growth again this summer, but still no bloom.

One of the finest roses I have is, to me, nameless as yet. It come to me from a reputable nursery as Mme. Georges Bruant; but nothing could be more unlike. It is a large deep pink rose, a vigorous grower with erect canes six feet high or more, and a profuse bloomer through June and July. But the lack of a name diminishes its value. A. S.

Whitewater, Wis., September 7, 1895

SPOT ON ROSE LEAVES.

W. L. P., New York, writes: "I enclose a few samples of leaves from my new rose bushes planted out in greenhouse benches for winter blooming about three weeks ago and all growing nicely. This same blight appeared on my last year's bushes during the winter months and my gardener cannot account for it; he says it is not mildew. It attacks new and medium old leaves and seems to be contagious."

As far I can judge from the appearance of the leaves, should say that the damage is not caused by any fungoid disease or insect, but is simply burned by the sun. I think if your correspondent will examine his plants he will find that lines of these damaged leaves will be found running north and south for a few feet and then disappearing. If I am right in my assumption he will find the cause in blisters in the glass, which act as lenses, focusing the sun's rays like a burning glass. The remedy is to either take out the panes containing these blister spots or to daub them with thick paint.

PAUL M. PIERSON.

Scarborough, N. Y.

ROSE CRIMSON RAMBLER.

This is the best advertised rose of modern times, but it has come to stay. Last year with me, and in Lincoln Park, Chicago, it mildewed so badly that it seemed worthless. I removed mine to a more open situation, but those in Lincoln Park were not changed. This year my old

plant was a picture, while last year plants bloomed considerably. There are now some symptoms of mildew, but not enough to speak of. One thing seems certain, and that is that where climatic conditions are conducive to mildew this rose must have an open situation. My plants were laid down in the winter and covered with earth. Those at Lincoln Park were planted on the western slope of a bank, unprotected, and they wintered well, but it must be remembered that the temperature of last winter was quite even and the snows remained until quite late. W. C. EGAN.

ROSES, WINTER MULCHING FOR.—C. H., Roxbury, Mass., asks: "Would leaves that have been piled up for a year and are partially decayed make a good winter covering for a rose bed? How thick in that case should the layer be made? Would a layer of manure on top of this be an improvement, the whole to be dug into the ground next spring?" That depends upon circumstances. Rotted leaves or leaf mould is capital for opening stiff soils, but there is very little manurial strength in it. In light land we wouldn't care about them. Roses want strong manure, and no matter how good the manure may be we put on them in fall for mulching, by spring time the substance is pretty well leached out of it; we would rather remove all the rougher part of that manure, and if need be apply finely rotted fresh manure to dig into the ground. Now there are two ways of protecting roses in winter, namely, by letting the plants retain their ordinary upright manner of growth, and mulch the ground over their roots as you suggest; the other way is to bend down the bushes flat on to the ground, keeping them all one way in the rows, and holding them in place by pegs, wire loops or the mulch. In either case four to six inches deep of the leaves and the same of rank strawy manure over it should answer very well. But if you have Bourbon, tea or other rather tender roses to cover lay them flat on the ground, then cover them with sods or loam, and over that a mulching of leaves or rank litter. Earth makes the safest mulch.

THE ROSE SLUG, HELLEBORE POWDER FOR.—C. H., Roxbury, Mass., asks: "Is hellebore powder dissolved at the rate of a tablespoonful to a gallon of water and applied with a force pump to the under side of leaves as effective against the rose slug as if used dry with a powder bellows?", No, because in applying it you lose so much of it. First moisten your rose plants all over, then take your powder bellows and blow the powder on to the foliage. It will stick to the leaves when they are wet. We apply it early in the morning when the leaves are wet with dew.

CRIMSON RAMBLER ROSE.—B. S. P. asks: "Will it prove valuable as porch rose in Virginia?" We cannot tell. In some places it has behaved nobly, in others poorly. But as it is so cheap and plentiful we all should give it a trial. If you have not got it try the old fashioned Gloire de Dijon rose; give it a south or southeast aspect, and if it proves hardy with you it will please you. Or, if you prefer a red, try Reine Marie Henriette, and get the Crimson Rambler too.

ROSE, PRAIRIE QUEEN.—A specimen of this rose bush, 15 feet high, trained on a trellis, on south exposure, bloomed to the tips this summer. It had no protection whatever over winter. W. C. E.

Northern Illinois.

Aquatics.

AQUATICS.

We have an artificial circular pond 13 feet in diameter here for the culture of aquatics. It is three deep with one foot of rich compost in the bottom. It was the intention to plant the nymphæas out in the pond, but experience has taught us that in a small space like this it was not the best plan. We now plant the nymphæas and nelumbiums in tubs nearly filled with rich compost, and place these in the pond. Another lesson we learned was that two feet of water was too deep, when we could protect it in winter. Of course in natural ponds which it would be impracticable to protect in winter, the rhizomes of nelumbiums and hardy nymphæas must be planted deep enough to keep them from freezing, but where they can be kept from frost in winter by covering the pond or tank with boards and salt hay; nine inches of water above the crown of the plant are enough. Nymphæas and nelumbiums bloom earlier, more profusely, and longer in shallow than in deep water. Shallow water is warmer than deep water, and the water at top is warmer than that at the bottom. For this reason we place our tubs of water lilies on brick piers so as to give them only a shallow covering of water.

We would have filled in the pond to the required depth with mud but for the fact that we have a large number of goldfishes in it, and the shallow water would get too much heated up by the sun for their health; so we have to compromise matters.

Whatever depth the pond may be, the foundation of the wall must be out of reach of frost. Ours is an eight-inch brick wall lined with cement.

The sorts of lilies grown are *Nymphæa odorata* and its variety *rosea*, *N. Zanzibarensis azurea*, and *rosea*, *N. scutifolia*, *N. Marliacea chromatella*, and the night-bloomers *N. Devoniensis* and *N. dentata*; *Nelumbium speciosum*, and its variety *album*; the water-hyacinth (*Eichhornia crassipes major*), the "water-snowflake" (*Limnanthemum Indicum*). In the center, with its roots half submerged, we have the Egyptian paper reed, which relieves the flatness of the water-lilies by its bold column-like stems crowned with tasseled capitals. This plant only likes to have its "feet" wet. The tub it is planted in is draped with "parrot's feather" or water-milfoil (Myriophyllum).

We have also, outside the pond, tubs of the water poppy (*Limnocharis Humboldtii*) and floating heart (*Limnanthemum nymphæoides.*) Around the pond is a little border in which are planted Japanese irises, and that beautiful, graceful grass, *Eulalia gracillima univittata*.

Of all the water lilies, those that give us most satisfaction are *Nymphæa odorata* and its variety *rosea*. They commence to bloom about the middle of May and continue to flower till the approach of cool weather. *Zanzibarensis* and its varieties are best raised from seed every year. Sow the seeds in January or February and pot as required, plunging the pots in pails of water. Put them in the pond, in their blooming tubs, about the first of June. All the nymphæas and nelumbiums delight in rich soil. On the approach of cool weather we take into our greenhouses our tubs of night-blooming nymphæa. When the foliage dies down we search around the base of the old plant for young "bulbs," as the old one is generally useless after the first year. You will usually find six or eight. Pot these and grow them on for next year. The more liberally you treat them the better will be the return.

The only insect pest that bothers us is black aphis; on account of the fishes we cannot use insecticides, but we keep these off by syringing forcibly with the hose. We cover over the pond in December with boards and salt hay, leaving a space for a 2-foot square sash to admit light to the fishes. Where fishes are kept do not use manure for covering, as the leachings of it will pollute the water. Constantly running streams and fountains are not good for water lilies, as they make the water too cool, though the fishes delight in it. WM. FITZWILLIAM.

Baronald, Orange, N. J.

The Fruit Garden.

SOME OF THE JAPAN PLUMS.

Ogon, Abundance, Burbank and Satsuma fruited here this last summer, the first two in quantities sufficient to test their market value, and the last two in less quantities. Ogon is considerably earlier than either of the others, and for that reason and the fact that it seems more likely to produce crops every year makes it valuable for market. It has a peculiar flavor which is relished by some and not by others, but its rich yellow color makes it sell, and it is a perfect freestone, while all the others cling more or less. It is sweet (except the skin) when eaten in its fresh state, but when cooked requires a very large quantity of sugar. Abundance, when in a vigorous condition and not allowed to overbear, is a very good eating plum in its fresh state and fairly good for cooking. Both sold in ten-pound grape baskets for 30 to 50 cents per basket. Burbank is somewhat later and larger, and Satsuma still later and larger, and both white and fine looking, are rather too firm fleshed to pass for best to eat in their fresh state, but Burbank is very good for canning and Satsuma still better, and we value both highly for this purpose. All four of them have proved practically curculio proof, because they bear enough in spite of it, and they have all borne full crops without other varieties to fertilize them.

Hammonton, N. J. WM. F. BASSETT.

THE FRUIT GARDEN.

Gathering the apples and pears is what concerns us just now. Seckel pears are in perfection. If you cannot eat them fast enough can them, they are delicious when properly "put up." Hardy is fine, Sheldons coming in and Bosc to succeed them. All are among the finest pears grown, healthy and free cropping. Better get these sorts all gathered and stored in a cool dark room. They are finer in quality when allowed to ripen in the house and slowly. Sheldon is what we are using for baking, and the windfalls of it for stewing. On account of the prolonged drouth all the pears, even the winter varieties as Anjou, Angouleme, Easter Beurre and the like are dropping so fast that we are beginning to wonder if any will stick on till the middle of the month, our usual gathering time; and rather than lose all we are lifting and gathering whatever part easily from the tree, but leave all that have any firmness to them,

MADRESFIELD COURT GRAPES.

for it really is too soon to gather such sorts as Winter Nelis, Easter Beurre, Josephine des Malines, and the like. A dry airy room is a bad place for gathered fruit, which in such quarters is sure to get shrivelled in the skin. While the fruit itself should be kept rigidly dry the atmosphere should be moderately moist.

Winter apples should be left on the trees till well into October; but at the rate they are dropping with us if we are to save any at all we shall have to pick them early in the month. In localities where they are sticking to the trees fairly well, however, let them remain unpicked as long as it is safe from sharp frost, they will keep all the better for it.

This is a good time to set out new plantations of raspberry and blackberry bushes. Shorten the canes considerably, lift with good roots and plant firmly, inclining the tops a little to one side, lengthwise in the row, to make it easy to bend them down and cover them over winter. In blackberry bushes be sure to retain the crosswise root at bottom.

If the weather continues very dry don't forget to give your young strawberry plants a good soaking of water now and again; get them into good condition both as regards crowns and roots before winter sets in. Now is the time to lay the foundation for a good crop of berries next summer.

MADRESFIELD COURT GRAPE.

The accompanying illustration, engraved from a photograph of some first prize bunches of this splendid grape that I exhibited at Boston, gives one a better idea of what kind of a berry it is than I could do in words.

The variety is a cross between Muscat of Alexandria, white, and Black Morocco, and it is an early grape. The berries are very large, oval, dark purple, with a dense blue bloom, and of the very best quality. The vine is thrifty, and the canes ripen up well, and the bunches set their berries fine, in fact it can always be depended on for a crop. I regard it as one of the best black greenhouse grapes in cultivation.

We have four vines of it here. Three of these I raised by inarching them on to Black Hamburgh stocks in the Hamburgh vinery; and the other one on to a Muscat of Alexandria vine in the Muscat house, the variety doing well on either stock, and admirably in either house.

As the leaves are thin and a little susceptible to burning, if your glass is not of A1 quality, that is if it has any flaws in it, shade it very thinly to prevent the possibility of the foliage getting scalded. When the berries begin to color be careful in ventilating the house, for if the atmosphere inside is kept close, particularly in sun heat, the berries are sure to crack. And have the border kept well watered too. It isn't a well watered, well drained border that causes cracking; it is stagnant atmospheric moisture on the berries that does the mischief.

GEORGE McWILLIAM.

Whitinsville, Mass., Sept. 16, '95.

PROPAGATING BERRY BUSHES.

Every grower of small fruit should understand the best method of propagating plants. New plants from black raspberries are secured by covering the tips of new canes lightly with moist dirt and leaving them until spring. They are then ready to set out.

The best plants from the blackberry are grown by digging up large thrifty roots and cutting them in pieces four or five inches in length, and planting these in a well prepared seed bed. They make good plants in one season. New canes or suckers are also used, and make good plants if carefully dug with a portion of the cross root attached.

For currants and grapes select thrifty new growth; cut them in pieces six to twelve inches in length and set them six or eight inches apart in rows, leaving only one or two buds above ground. Press the dirt firmly about all cuttings.

Gooseberries are sometimes grown from cuttings in the same way as currants and grapes, but they are not so easily propagated. The better way is to bend branches of them to the ground in fall or early spring and cover them with moist dirt. Fine roots will start along the branch in one season, then make them into cuttings and set them out in the same way as currants and grapes.

Cuttings require deep rich soil and clean cultivation. They may be made after the first frosts and set at once, or tied in bundles, buried in cellar away from frost, and set out early in spring. Label each bundle as it is made and mark each row as it is set. By growing your own plants a love for them is created that would not otherwise exist. M. A. THAYER.

Sparta, Wis.

HALE'S PAPER SHELL HICKORY.

Mr. Henry Hale of Englewood, N. J., found on his farm near Saddle River a shell bark hickory tree whose nuts were so thin shelled that a person with ordinarily strong hands can take two of these nuts and press them together, breaking them in the hand, something almost impossible in the case of a common shell-bark nut. And besides being thin-shelled these Hale's nuts are large, meaty, of fine eating quality and they keep in good condition longer than do those of the English walnuts (*Juglans regia*).

Soon after it was discovered we secured some wood for grafting, and I propagated a good many trees of it in this way, using seedlings of the common shell-bark for stocks. Of the first lot we raised—just sixteen years ago—we sent a memorial tree to Mr. C. A. Dana, at Dosoris. It is bearing fruit this year for the first time. A plant of the same propagation that we set out as a specimen in the nurseries here, bore fruit for the first time last year.

As grafting hickories is no easy matter let me detail my method of doing it. Have found the last half of April to be the best time. Have the cions cut during the winter and put away in a shady corner to prevent their early moving into growth. Before grafting let the stock show moving in its buds. Crown, whip, also half-cleft grafting, I have found to answer. In grafting, wax well and tie wax paper around the unions to exclude air and ward off rains. The cions are not likely to start before three or four weeks. Look at the top of the paper, and as soon as the buds begin to push, open the top. It is well to tie a little stick to the graft the first year for fear of breakage by wind. The rest is easy, untie gradually so that there shall be no strangling of the grafts. J. R. TRUMPY.

Kissena Nurseries, Flushing, N. Y.

I WISH TO SAY that I am a subscriber to several horticultural journals but have found more satisfaction in GARDENING than all the others put together; so well do I like the paper that I immediately bought volume one and the back numbers of volume two when I entered my subscription. It is my directory in all such matters. H. C. BURROWS.

New York, September 16, 1895.

I REALIZE the different character of contributions to GARDENING and editorial comments from those contained in most of the floricultural papers. It seems a pity that amateurs have nothing but your paper, as far as I know, to tell them all the faults of a plant as well as its merits. We set things out, not knowing their failings, wasting a whole year, and if late in the season, leaving bare spaces in the garden. L. C. L. J.

New York, September 1895.

GARDENING

WILLIAM FALCONER, Editor.

PUBLISHED THE 1ST AND 15TH OF EACH MONTH
— BY —
THE GARDENING COMPANY,
Monon Building, CHICAGO.

Subscription Price, $2.00 a Year. 24 Numbers. Advertising rates on application.

Entered at Chicago postoffice as second-class matter.

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All communications relating to subscriptions, advertisements and other business matters should be addressed to The Gardening Company, Monon Building, Chicago, and all matters pertaining to the editorial department of the paper should be addressed to the Editor of GARDENING, Glen Cove, N. Y.

GARDENING is gotten up for its readers and in their interest, and it behooves you, one and all, to make it interesting. If it does not exactly suit your case, please write and tell us what you want. It is our desire to help you.

ASK ANY QUESTIONS you please about plants, flowers, fruits, vegetables or other practical gardening matters. We will take pleasure in answering them.

SEND US NOTES of your experience in gardening in any line; tell us of your successes that others may be enlightened and encouraged, and of your failures, perhaps we can help you.

SEND US PHOTOGRAPHS OR SKETCHES of your flowers, gardens, greenhouses, fruits, vegetables, or horticultural appliances that we may have them engraved for GARDENING.

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HYMENOCALLIS (ISMENE) CALATHINUM is a crinum-like bulbous plant with beautiful, white, very fragrant flowers, a native of Brazil. But it is one of the easiest of plants to grow—plant it out in the garden in May, and lift the bulbs in October and keep them dry over winter as one would a gladiolus. At Mr. McElvery's at Flatbush the other day we saw a long row of it in his greenhouses. "Well, I'll tell you how I came to have so many," he remarked. "Some years ago I got a very large bulb of it and planted out in my garden, in the fall I dug it up with a fork but not thinking it was so deep in the ground, broke the bulb at the base. I was sorry enough, but I dried the wound and buried the bulb in dry soil in a pot in the house. It kept plump and nice and in spring showed signs of buds at the base. I planted it out as before, and that summer got sixteen offsets from it. And for cutting the flowers are much better than crinums, they last so much longer."

VICK'S WHITE BRANCHING ASTER is one of the largest and finest blooming of all China asters. A pink flowering variety of it has now been secured.

A WHITE CRIMSON RAMBLER ROSE.—A prominent British florist visiting here the other day told us about a white variety of the Crimson Rambler that is now being "worked up" on the quiet. He was very pronounced in his praise of Crimson Rambler itself.

THE DAHLIAS LOOK BAD.—Mr. Wm. F. Bassett of Hammonton, N. J., quite a dahlia fancier, writing to us September 22, says: "It is very dry and excessively hot here—98° in the shade yesterday and 97° to-day. I never knew dahlias look so bad before. The American Dahlia Society's committee at their last meeting decided not to hold a regular exhibition because there was likely to be so little to show."

AN EXHIBITION OF CANNAS was held in New York September 23. But on account of the protracted drouth and the exceedingly hot weather at the time of and for some days immediately preceding the exhibition, the exhibits were not as many or as varied as would have been the case had the weather been cooler. In fact on this account some of our most enthusiastic canna raisers were unable to make any exhibit.

THE ENGLISH FLOWER GARDEN.—Several of our subscribers have written to us asking for this book. Our publisher's stock of it has been sold out, but he has sent to London for a further supply, and in a few days expects to be able to supply it to all who want it. The price here, post paid, is $6. It is the best book on the subject in the English language, right up to date, lavishly illustrated, and by the greatest master in the art of decorative gardening living.

COLUMBIA, the champion canna of the World's Fair, and still regarded as one of the (if not the) best crimson cannas in commerce has disappointed us. It is dwarf and produces immense branched heads of large blossoms, but among fifty varieties of new cannas now in full growth and bloom at Dosoris, it is the poorest grower. This may be the fault of the individual plant that we have however, rather than of the variety. Anyway there are among scarlets and crimsons several whose vivid colors are more pleasing.

POOR ASTER SEED.—One of our subscribers asks us to tell her where she can get good seed and true to name, what she has had this year has been poor, and wrongly named, and she" won't stand it." We all know that the China aster seed crop of '94 was a failure, hence there was very little good seed on the market this year, but be it good or bad we should see to it that it is true to name. About the best seed to be had this year was what was left over from last year's sales; that is the crop of 1893. But the prospects are bright for good seed and plenty of it, next spring.

MORE CHRYSANTHEMUMS.—Mr. T. H. Spaulding of Orange, N. J., many of whose new chrysanthemums we illustrated in GARDENING last fall, has gone into the cultivation of this beautiful flower more extensively than ever. He has just completed a new greenhouse 100 feet long by 25 feet wide for them, and has in course of erection other three greenhouses of the same dimensions for the same purpose, besides one equally large for carnations. No doubt Mr. Spaulding is encouraged in this by the satisfactory progress of a host of new seedlings of chrysanthemums he has raised this year, both from home saved pedigree seeds and a special selection of seed from Japan. From among both of them he expects something new, distinct and pretty nice. He sent some of the seeds of both to Dosoris last spring and we have a very promising lot of plants from them. That is one of the good things in chrysanthemums, we can raise them from seed and bloom them the same year.

GOLDEN GLOW is to be the name of the new double flowering form of *Rudbeckia laciniata* that is going to be sent out as a novelty among hardy herbaceous plants next year. We saw it in bloom in the summer of 1894, and were not only particularly well pleased with it as a vigorous decorative plant, but amazed because we had never before seen or heard of a double-flowered rudbeckia. Last spring a plant of it was sent to Dosoris for trial. We planted it out in the open garden where it has grown strongly and blossomed lavishly and most beautifully and for several weeks. Among the prominent horticulturists who have gone into ecstacies over it as seen at Dosoris were Wm. R. Smith, of the U. S. Botanical Garden, Washington, Wm. L. Swan of Oyster Bay, and John McElvery of Flatbush. The flower stems rise 5 to 7 feet high and are very branching and carry sheaves of large, showy, pure, deep yellow, full-double blossoms, far more beautiful and elegant than those of any sunflower, and they last well when cut. Not only has this plant great value for garden decoration, but for cut flowers it is going to be invaluable. There is no green or dark eye whatever to it, it is quite double, and without any of the stiffness peculiar to *Helianthus multiflorus* or any other sunflower. In fact we look upon it as the most desirable addition to our hardy plants since *Clematis paniculata* was introduced.

POISONING BY NIGHTSHADE (*Solanum nigrum*).—A little girl between two and three years of age, in Glen Cove, was out picking and eating grapes when she came upon one of these nightshade vines full of its black berries, and thinking they too must be good to eat she picked and swallowed some of them. She became very sick, going into convulsions and showing every symptom of Belladonna poisoning. A physician was immediately on hand and after considerable work succeeded in saving the child. The black berries ejected by the little sufferer were identified as those of *Solanum nigrum*. This solanum is a bushy, sprawling, common weed, a naturalized plant from Europe and frequent in moist waste places, as by roadsides, hedgerows rubbish dump places in gardens and the like. It will spread flat along the ground or rise up among other bushes, but it is not a climbing plant. Its leaves are ovate and deep green, and its flowers quite small, white, potato like, and in small clusters, soon succeeded by small round green berries that change to black when ripe. Although large children and grown people are not apt to eat of this fruit, they are tempting enough to young children who usually look upon all kinds of berries as something meant to be eaten. And as they are neither ill tasting nor ill smelling they offer nothing repugnant to young children. We would therefore urge our readers who notice this vile plant growing on or about their premises to pull it up and destroy it. The

common bittersweet (*Solanum Dulcamara*), a climbing plant with rather showy potato-like purple flowers and showy scarlet berries, is another dangerous member of this family, but its fruit is not so virulently poisonous as that of the black berried nightshade referred to above.

Cacti.

CACTI: HOW TO GROW THEM.

Some cacti as epiphyllum, phyllocactus and some cereus are remarkable for the beauty of their flowers, others are noted for their odd and attractive spiky bodies. While most cacti are natives of warm climes, we have some in Dakota, Montana, Minnesota and even in Wisconsin. These must endure more than 40° below zero at times, but generally they are in well drained situations and get thoroughly ripened before hard frost sets in. It is a mistaken idea that cacti must be always kept dry to do well, this state during their resting period is all right, but like the camel they must have water sometimes. In their native habitat some survive without rain for a year or two, then a rainy season comes on and they are soaked into life and commence to bloom at once, then to grow and produce their fruits or seed.

Some cacti grow on open prairie like any wild plant, and in their season the ground is carpeted with the bright flowers of *Echinocactus Texensis*, *E. Simpsoni*, *Mammillaria applanata*, etc. Others may grow in rocks without any apparent soil, but if you trace the one root down for several feet you may find it enlarges into a tuft of roots in fine, rich soil. The bulky cacti do better if their bodies do not rest on moist soil, sand should be placed under the plant

When cacti from native collectors direct are received their roots are mangled and broken, now these should be cut off close to the plant with a sharp knife. If the plants are then placed on clean sand and only moistened occasionally they will make lots of fine roots which will soon "boom" the plants.

My best success with fresh cacti received in summer was as follows: I had a common frame with sash hinged and raised at all times except in damp or cool weather. On the hard dirt bottom six inches of sand were placed. After the roots were all cut off the plants were placed on the surface of the sand and showered occasionally, so that the surface of sand was dry soon after, but the bottom was rather moist. In two months they made masses of roots equal to the size of the plants, in fact roots as good as you would want on a strawberry plant, these could be lifted with sand attached and potted in rich soil. To illustrate take a small fresh plant, say of the echinocactus family and suspend it an inch over a glass of water—watch the result.

In a bed as described, three feet square planted close with *Echinocactus cæspitosus* I had from 15 to 25 flowers open every day for over six weeks, hundreds of beautiful pink and magenta blossoms three inches across and sweet scented, open to the glare of the sun for days. *E. Simpsoni* produces its rosy flowers as profusely, as many as eight being on a plant the size of a hen's egg.

Amateurs should not be discouraged! Investigation may perhaps show that too much water at times and not enough at others may be the cause of failure but in most cases it is poor drainage. To the beginner I would say, put a 4 inch board on a pair of ten cent brackets in a south facing window and set thereon twelve saucers, then twelve small pots in them and a plant in each pot. For soil I take one-half sharp sand and the balance of rich loam with some lime or old plaster, fill the pots one-third with charcoal for drainage. Let the plant rest immediately on sand or small pebbles and water once, no more until growth begins.

Cuttings should be placed in the sun for three or four days before planting them kept about dry until rooted. They root best in clear sand. The safest rule is to err on the side of dryness.

Milton, Wis. CURT K. PLUMB.

The Vegetable Garden.

THE VEGETABLE GARDEN.

The celery must have good attention now. Give it abundance of water if necessary. White Plume and Golden Self-blanching should be earthed up full, or, better still, boarded up on each side and earth banked against the boards. By the first of October it is time all celery was handled, that is, the earth drawn in about the crowns and firmed there with the hands so as to compact the leaves together. But we wouldn't earth up the celery full that we intended for late winter use before the middle of the month.

Thin the kale sowed last month to two or three inches apart in the rows.

Keep the ground stirred among the young spinach to prevent, as far possible, any o the seedlings damping off.

Get the cold frames filled with young lettuce plants. Exposing them to much cold, notwithstanding the fact that they will stand several degrees of frost with apparent impunity, does them no good, in fact it toughens them.

Be prepared to cover tomato plants in full bearing with some temporary protection against frost, a movable cold frame set over them is an excellent way of saving them. The same with snap beans. Indeed by placing a makeshift cold frame over three or four parallel rows sown a-purpose and banking against them with earth, and covering them with sashes, and these, in case of frost, with straw, hay or mats, we can have nice beans into November.

Keep the ground hoed among the young beets, carrots and turnips to keep them growing, hence tender and juicy. About the end of the month or first of November is time enough to pull them for storing in winter.

If you haven't any parsley growing especially for winter use, lift some roots and plant them in a box and keep as warm as practicable to encourage growth before consigning it to the cellar.

RAISING MUSK MELONS.

At the Henry Shaw banquet to nurserymen, florists and market gardeners, given in St. Louis on the 14th of September, Mr. D. I. Bushnell in speaking of the celebrated Montreal musk melons said:

"Great care is used in the selection of seed. The melon earliest to ripen, best shape, etc., is left to ripen thoroughly for this purpose. The hotbed is made by first spreading hot manure fifteen inches deep upon the ground, then laying the frame thereon, banking outside with manure and filling the inside of frame with five inches of dirt. The glass is then put on and left for a few days in this state until the first great heat is over. The seeds are planted about April 1, in 5-inch pots, five seeds in each, and pots placed in hotbed frame as close together as possible. The temperature of the hotbed is kept at about 80°.

"Early in May trenches are dug, fifteen inches deep, filled with hot manure, covered with earth eight to ten inches, and at the distance of every four feet the melons are transplanted, putting one pot containing three or four stout plants in each hill, of course turning them out of the pots. They are again covered with glass and given plenty of air during the day and covered at night.

"When the plants make a growth of three leaves nip off the top, so they can send out shoots for fruit. This is of great importance. About July 1, when vines have grown enough to fill the frames and melons are formed the size of your fist, remove the frames gradually. Shingles are placed under the melons, which greatly add to the appearance of the fruit when ripe. The largest melon I ever saw weighed twenty-eight pounds, although thirty-five to thirty-eight pounds is not at all unusual."

CABBAGE WORM, TO DESTROY IT.—Get some fine salt, dry it perfectly dry on the stove or in the oven, then take it out with you into the garden. In the evening when the dew is on the plants take a small pinch of this dry powdered salt and dust it on each head; the dew will dissolve it and a slight rain will carry it in among the leaves of the cabbage or cauliflower, and it kills every caterpillar it touches and doesn't hurt the plants any. Do this about once a week. It is quick, simple, and effectual.

Mushrooms.

MUSHROOMS.

N. L. G., Nottingham, N. H., writes: "Some time ago I purchased your book on mushrooms, and once I raised some good mushrooms, but have not been able to do it since. I have tried several times but failed. I think the trouble must be with the spawn, as I have followed strictly your instructions. I have also in my possession instructions on growing mushrooms given by a French gardener, in which he advises to examine the spawn after it has been in the bed seven or eight days, and before the bed is cased over, and to remove such spawn as does not thrive. Now, as I find nothing in your book like the above, I write to inquire if it would not be a good plan to delay casing the bed till the spawn begins to thrive, and thus save all uncertainty about the spawn being good or worthless and much time in waiting for the bed to produce mushrooms when spawned with worthless spawn? Also will all good spawn show activity or begin to thrive in seven or eight days after being placed in the bed? And if so, why could not spawn be tested before using it extensively by making a small bed and waiting a short time for it thrive?"

With good spawn, good materials and a good place there is no reason why you or any one cannot grow mushrooms. No, the spawn isn't always good, and even experts may fail in knowing whether it is good or bad. Our book is written from actual practice, and is absolutely void of stereotyped twaddle. The French gardener's plan, or a modification of it, is

found in every old book on mushroom growing we have seen, but we pay no attention whatever to it. If we think the spawn is bad we won't plant it at all, and if we think it is good we will plant it, and no matter whether it shows "thriving" or running at the end of eight or ten days after planting we case the bed and hope for mushrooms. Experimenting as you suggest would be throwing time away. Take a brick of spawn into moist genial quarters, you needn't have a hot-bed, just lay it around anywhere, say on a hillock of gently warm manure in a corner with a little straw over it to arrest atmospheric condensation which might rot the spawn. If the spawn is good it will soon run in the brick. In the Paris Caves the new beds are mostly all spawned with working spawn taken from other beds; in such a case the spawn is sure to be alive. Still we prefer the dormant spawn, if good, for heavy crops and heavy mushrooms.

Miscellaneous.

HINTS FROM NATURE.

Sometimes what might be termed accidental force of circumstances produces effects so charming in its way as to create well deserved admiration. I came across a "combination" the other day that set me thinking. In an old and unkempt front yard was a large spruce, with a spread of branches of some twenty feet, the lower ones sweeping the ground. Midway between the trunk and the tips of the lower branches, a little group of the Allegheny mountain fringe (*Adlumia cirrhosa*) had made its home. You can all call to mind the distinctive characteristics of an old well clothed evergreen branch in its almost feather-like shape, and then imagine this vine climbing up through the spreading laterals and covering them like a mantle of lace. The delicate fern-like foliage of the vine, in its lighter color and graceful lines, was enhanced in its beauty by the contrast with the darker green of the bristly "needles." All this was heightened by the sheet of delicate pink flowers that seemed to fairly cover the whole space. All indications pointed to the fact that the vine was happy. It was not planted there, but some wandering seed had started the settlement, and the natural conditions being in accordance with the requirements of the species it staid, reproduced its kind and will so continue. Compare that vine in the situation described, where every gentle breeze sets it swaying to and fro in unison with its chosen support, with one that is harnessed to an unyielding trellis and bid be happy and content. I always feel sorry for some vines I occasionally see. They remind me of a dog chained in the hot sun. Oh! if both could only get away somewhere and have a run.

Undoubtedly many readers of GARDENING can reproduce this scene. The vine has been known and cultivated since 1788, and is a biennial, but under proper conditions will sow itself, thus when once established the group can be considered perennial. Use its foliage for bouquets. After you have chosen the tree under which to sow the seeds see that the soil for at least one foot deep and three or more in circumference is loose and friable, for it will not re-sow itself in hard clay soil. Sow any time—fall or spring—and see that the vines have a fair amount of moisture. Shade and moisture and freedom to ramble at will are its main requirements. [It also grows first-rate in open sunshin.—ED.] W. C. EGAN.

BEAUTIFUL IVIES.

C. W. R., also writes: "While on a trip abroad several years since, I saw in England and Wales, several varieties of variegated ivy growing wild, some were green and white, while others had shades of red and brown most delightfully blended. In Germany I saw an ivy vine whose stem was 8 inches in diameter, and it had leaves 8 inches across. The vine covered hundreds of square yards of surface and was evidently very aged."

Many of these ivies are very beautiful. On tree trunks and walls in moist, sheltered, shady places even as far north as Boston we know of some of the commoner ones doing fairly well, but it isn't till we come to Philadelphia that they may be said to flourish. On north-facing walls, etc., at Washington they seem at home. At Dosoris we have a good many kinds (thanks to our good friends William R. Smith and John Saul, both of Washington) that thrive admirably, carpeting the ground under shrubs and trees in a shady moist place. And our genial friend and kind neighbor Mr. Wm. L. Swan, of Oyster Bay, just back from a trip to Europe, brought over a lovely lot of these fancy ivies from Wemyss Castle, Scotland, the gift of Mr. J. Clark, the gardener there, and has presented Dosoris with a set of them.

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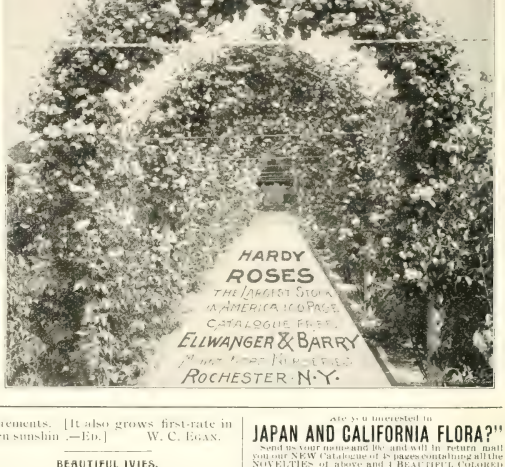

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From the little branch sent, without any fruit cones, we cannot make anything more or less out of it than plain *Retinospora squarrosa*. Color or habit hardly counts, as both vary from seed, and as regards being easy to strike from cuttings, *squarrosa* is so generally. Hybrid conifers are, like diamonds by the wayside, hard to find. But seedling and bud sport variations are plentiful and often very distinct. Should the evergreen in question prove distinct from the type in color or habit no harm is done in giving it a distinct varietal name.

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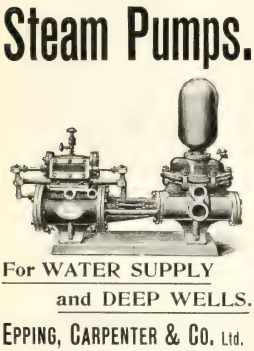

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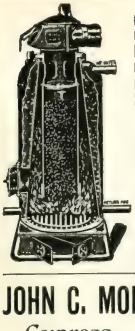

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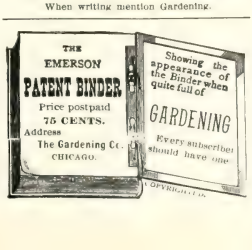

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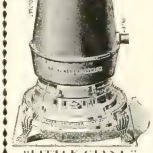

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GARDENING

Vol. IV. $2.00 A YEAR. 24 NUMBERS. CHICAGO, OCTOBER 15, 1895. SINGLE COPY 10 CENTS. No. 75.

MR. ELLWANGER'S ROCK GARDEN. AT ROCHESTER, N. Y.

Landscape Gardening.

A ROCK GARDEN.

A rockery or rock garden does not consist of a pile of stones and earth set up in some meaningless spot in the garden to be filled with all manner of plants. There should be a reason for it. This may be to provide a home where a certain class of plants can be grown and displayed to the best advantage; or it may be a special ornamentation in the garden. But the rock garden should never be stuck out in the open lawn and full sunshine, or in any other isolated prominent place.

Our illustration, engraved from a photograph, shows a very pretty example of a rock garden in its floral glory in spring; it is built against the bank of a spur of woods. Mr. George H Ellwanger writes us about it as follows:

"My father's rock garden has been planted with reference to spring and early summer flowering; our climate is so dry and hot in summer that it is quite a task to hold a good succession of bloom. The rocks are of limestone, honeycombed and mellowed by age, and form a most natural and pleasing finish to the base of a fairly wooded hill. The rock garden faces the east and receives the full morning sun, but is shaded most of the afternoon. Here are splendid cushions of *Phlox amœna*, *P. procumbens*, *P. subulata* and its white variety; *Iberis correæfolia* and *I. Gibraltarica*; thyme, arabis, *Lotus corniculatus*, and other trailing plants, with saxifrages, primroses, narcissi, trilliums, Iceland poppies, anemones, columbines, campanulas, Christmas roses, yuccas, *Daphne Cneorum*, and numerous native ferns and wildling flowers, as hepatica, foam-flower, spring beauty, bloodroot, violets, polygala and lady-slippers. The mass of bloom that shows most in the illustration is that of *Phlox subulata alba* and some *subulata* (moss-pink), and the hardy evergreen candytufts. At the base of the rock-work forget-me-nots and pansies show. Earlier, in their stead, the chionodoxa and Siberian squill were first to push above ground, succeeded by various daffodils and narcissi, these bulbs being left in the ground. Hyacinths and tulips also occur in it. Most of the sedums are excluded, as they quickly become a pest. The same applies to the pretty little fern, *Cystopteris bulbifera*, as well as to the common moneywort, *Lysimachia Nummularia*."

Now that you see a very beautiful example of a rock garden, from life, don't jump to the conclusion that you can

build a rock garden against the face of any gravel bank backed with trees, and enjoy the luxuriant beauty displayed in Mr. Ellwanger's garden. The soil in the rock garden should be good, friable and deep; it should not be surfeited with manure; old, well decomposed peat mixed with the loam opens it if stiff, and the plants like it; leaf soil too is a capital addition. Mountain plants and other appropriate ones generally grown in rock gardens love moisture and good drainage at the same time—moist, sweet soil, such as one finds on the side of a mountain. Any spot in the garden all exposed to the blaze of the noon and early afternoon sunshine is unfitted for a rock garden, because the heat and dryness there would roast the plants in summer. Close by big rubber trees or vigorous shrubs, as elms or large philadelphus is also a poor place because the roots of the trees will go in search of good soil, and finding it in the rock garden will luxuriate there and impoverish and dry out the earth much to the detriment of the little plants among the stones. Don't build a mound or pyramid of earth and stones and call that a rockery, for it isn't.

For a plain rock garden for little plants we should prefer a north, northeast, east or southeast aspect; but really by a proper manipulation of the plants used in and about the rockery most any aspect not too parching will do. Yuccas, some small shrubs, moss pinks, some of the creeping speedwells, the common perennial candytuft, and others, will thrive in all-day sunshine; ivy, periwinkle, hypericums, hepaticas, lily of the valley, moneywort, and a host of spring blooming bulbous and wild plants and ferns will feel perfectly at home on the north slope, and most everything will thrive on the east side Thus it will be seen the rock garden may be partly in the open and partly in the shade if need be. It it has to be made where the roots of trees can get at it easily, some provision should be made to arrest this evil, say cut a deep narrow trench between the trees and the rockery every two or three years, to sever the tree roots; the trench should be filled up as soon as dug, for to cut the roots is the only object in opening it.

A rock garden isn't a decoration of stones, and any attempt to make a display of the stone work is contrary to good taste and good gardening; the primary object should be to furnish a happy home for a host of neat growing tufted, and trailing plants and to show these off to the best advantage. Don't use hewn or formal stones; the best are old, rough natural or slab-like rocks pretty well mossed over by long exposure. There is an impression that the rocks in a rock garden conserve moisture and keep the ground cool; but if you put your hand on one of these stones exposed to hot sunshine, the feeling is not one of coldness. In arranging the stones avoid the honeycomb-pockets idea, it is unnatural, ugly, and ill-adapted for the cultivation of plants. Arrange the rocks in a somewhat natural condition with broad patches of bare ground here and there among them, where little colonies of plants can spread; open fissures between them which rosetted plants can fill or creeping plants grow up in; little ledges can be formed for mats of prostrate plants to grow over and cover. In fact, the prettiest rockery is the one that is most covered by appropriate plants, all healthy and seemingly at home, and nowhere coarse or weedy. While for the surface perfect drainage at all times, summer and winter, should be secured, we also must have in view the prevention of over dryness. The soil in the little spreads between the rocks should be comparatively level and not sloping like a side hill.

The plants in a rock garden should all be hardy. A conglomeration of hardy and tender plants is unnatural and unbecoming. At the back and on the flanks of the rock garden we can use some of many shrubs, for instance rhododendrons and azaleas (where hardy), kalmias, American yew, tree ivy, hypericums, creeping euonymus, the hardy cytisus, Thunberg's barberry, staphines, star magnolia, shrub yellow root, ceanothus, snowberry and Indian currant, dwarf mock orange (*microphyllus*), wild roses, such as *nitida* and *foliolosa*, dwarf spiræas, and many others. And among these it would be very pretty to naturalize our wild flowers, as false Solomon's seal, foam-flowers, partridge berry, twin flowers, anemones, gold thread, star flower, rue anemones, Pennsylvania and fire pinks, cypripediums, spring beauty, adder's tongue, dalibarda, blue, white and yellow violets, dicentras, pyrolas, twin-leaf, columbines, dwarf cornel, bluets, including the spreading (*Houstonia serpillifolia*) from the Alleghanies, and many others.

For covering large boulders or ledges from the bottom up we have apt plants in the Japan ampelopsis, creeping euonymus, and climbing hydrangeas, but these should have good soil to grow in and plenty of moisture in summer. To spread over ledges from the top down we have the Japanese spreading rose (*Wichuraiana*), the fragrant sumach, strawberry bush (*Euonymus Americanus* var *obovatus*), bearberry, and other shrubs, and such vines as wild clematis, Virginia creeper, etc.

In addition to the hardy perennials mentioned by Mr. Ellwanger we may mention the following which we have tried and found useful for this purpose: *Erysimum rupestre*, golden alyssum (*A. saxatile*), *Veronica rupestris*, Geneva creeping bugle (*Ajuga Genevensis*), *Stellaria Holostea*, thrift (*Armeria vulgaris*), aubrietias, tufted pinks (*Dianthus*) several species, alpine wall flower (*Cheiranthus alpinus*), *Tunica Saxifraga*, silenes of several kinds, *Nierembergia rivularis* (in a wettish place), creeping forget-me-not (*Omphalodes verna*), *Heuchera sanguinea*, isopyrum, jasione, micromeria, *Cerastium grandiflorum*, and several others.

And many other bulbous plants could be used advantageously, for instance crocuses, snowdrops, snowflake, meadow saffron, autumn crocuses, triteleia and some lilies, notably the Siberian *tenuifolium*.

The Flower Garden.

MERITS AND DEFECTS OF A FEW HARDY PLANTS.

GLAUCIUM CORNICULATUM (horned poppy) and *Adlumia cirrhosa* (Allegheny vine) planted together make one of the loveliest combinations imaginable. The glaucium has silvery foliage, something in the style of dusty miller, only handsomer, and the adlumia is always taken by strangers for a maidenhair fern. The glaucium will send up tall flower spikes, which must be kept cut off, as the dull yellow flower has no special beauty and lasts but a day. The seed of the adlumia must be sown every year, as it is a biennial, and the second year will climb to a great height, but it is the first year when it grows only a foot or so high, that it is most beautiful. As a climber also it is graceful and beautiful, but the small closed flowers add nothing to its beauty, in fact detract from it, and the plant itself has a habit of "petering out" very early in its second season. Have the glaucium plants about two feet apart, and sow the adlumia between them. Seed sown in the fall will come up early in the spring. The foliage of the adlumia is especially graceful in bouquets. If allowed to flower it will sow itself like a weed.

GENTIANA ACAULIS.—The intense Prussian blue of this flower is probably unequalled. The plant blooms about the first of May and is worthy of any care and attention that may be bestowed upon it, although it seems rather difficult to manage. A plant of mine has been growing in fairly good soil, not too wet or too dry, getting a few hours morning sun, has not been disturbed at the roots for three years, and yet last May was the first time it bloomed, and that sparingly, while the plant itself seems to be growing smaller. Does it appreciate liquid fertilizers? [No, it does not.—ED.]

SCHIZOPHRAGMA HYDRANGEOIDES.—Three years ago I set out a plant and today it is only about two feet high. It is called a climbing hydrangea, which it resembles closely. It clings to wood and stone like an ivy. While my plant is sturdy looking enough, it seems to have been born tired, and unless one has an unlimited supply of patience I would advise him or her to try something a little more rapid. A person naturally likes to think that a plant he sets out will bloom during his life time. My plant gets the morning sun and plenty of water. I did feed it well at one time with liquid fertilizer until I got out of patience at its utter indifference, and lately I have left it to its fate. It is perfectly healthy. [Have patience. In good moist ground and a sheltered place it ought to do well. Its flowers are not showy like those of Otaksa or *paniculata grandiflora*, but when borne in profusion they have a marked effect.—ED.]

VINCETOXICUM ACUMINATUM (mosquito catching plant) really does catch mosquitos. It bears in June clusters of small white star-shaped flowers, and almost every flower will be found to have caught a mosquito which has inserted his proboscis into the throat and cannot get away. Such strength does this little flower seem to possess that I have seen a large moth, about an inch long, struggling with might and main to free itself after being caught. If left to grow the plant will climb a few feet, but it cut back to the root it grows up like a small bush and flowers again. The plant itself has no beauty, but the clusters of small white flowers are pretty enough.

GALIUM MOLLUGO.—Although somewhat similar in both appearance of plant and flower to *Gypsophila paniculata*, I consider it superior, as the flowers are larger and will continue to make their appearance for a very long time if the old flowers are kept cut. It does well with me in ordinary soil, and gets a few hours of the morning sun. When mixed with sweet peas the effect is most charming.

PHYSIANTHUS ALBENS.—This is another plant, a climber, which like *Vincetoxicum acuminatum* is said to secrete a viscid juice and imprison insects unwise enough to insert their bill into the throat of the flower, thus giving it the name of the Cruel Plant. I started seedsin the greenhouse in March, and by the middle of May the plants were about 6 or 8 inches

high. Since then they have made rampant growth. The leaves are opposite, long and narrow and a deep leathery green, not at all bad, but the fault of the plant is that the distance between the pairs of leaves is so great that it is not worth much for shade, and unless it has constant pinching back it will run up 20 or 30 feet without branching. It is now the 12th of September and my vines have had but two flowers, although some are in partial shade and some in the sun. The flower is small and cup-shaped, white tinged with pink, but not at all showy and worth nothing for cut flowers. The milk which exudes when the plant is bruised or broken may as well be kept away from the eyes and mouth, although I do not know whether it is poisonous or not. [This plant is not hardy. It does not blossom much the first year from seed, but two or three year old plants often blossom abundantly and are quite showy when in bloom.—ED.]

Bergen Point, N. J. L. C. L. J.

FLOWERS IN BLOOM DURING THE LATTER PART OF SEPTEMBER AT EGANDALE.

The closing scene of Flora's march is now upon us, and ere long the whitened mantle of the "King of the North" will be spread with kindly intent over all our summer friends. Have they repaid our loving care? Have they given us the promised wealth of their bloom? Yes, three-fold. Each in its turn has added its glory to the scene. Their cycle of bloom is nearly completed, yet a walk around my grounds to-day shows the blooms of over fifty perennial species still on hand, exemplifying that mystery of exquisite coloring that lies beyond the artist's touch—that emanates only from the laboratory of mother earth. Let us not forget them in their time of rest. They will be but recuperating from their labor of love, and will again awaken and with renewed vigor gladden our hearts once more. Protect them well from the wintery blasts and await with eager interest the first floral harbinger of spring. Some members of the procession that earlier in the season were prominent in their brightness have, like wanton boys, slipped out after passing the grand stand and again entered into line with their second crop, and once more we enjoy the delphiniums, platycodons, clematis, achillea and others. One correspondent of GARDENING has lately stated that with him the platycodon blooms but once. I have but two strong plants of *P. grandiflorum*, and I do not think there has been any time since they first bloomed except perhaps a gap of eight or ten days, but that there were some blooms on them. On one plant to-day I noticed two unopened buds, three faded flowers and two fresh ones. These plants are in a rather shaded situation, and from them, as with all others, the faded flowers are picked each day. The golden rods and the asters thrive in such profusion all around us that with the exception of in my wild garden I do not cultivate them. The new comers since my last list are few, yet welcome.

Helianthus orgyalis, the fountain sunflower, a native of our southwestern states, is one of the most decorative autumnal flowering plants we have. It can hardly be used in landscape work on account of the difficulty in keeping it erect against the high winds. It grows eight to ten feet high, throwing up numerous long slender main stalks, thickly clothed with narrow lanceolate leaves. Flowers a bright golden yellow, two inches in diameter, with a dark center, so freely produced on short lateral stems as to form a large panicle. It is perfectly hardy and very effective when the sun shines upon it.

Helianthus Maximiliani, Maximilian's sunflower, is about the latest perennial we have to flower, and in a sheltered position is quite effective. It grows fully eight feet high, producing numerous large clear yellow flowers.

Tricyrtis hirta, var. *nigra*, the odd looking Japanese toad lily, must have been evolved in one of nature's humorous moods. It is certainly a very curious and interesting plant when in bloom, but it would require a more facile pen than mine to describe it, and even then the reader would not know as much about it as he did before. The plant grows about eighteen inches high and bears numerous odd looking orchid-like flowers of a peculiar brown color.

The Japanese anemone (*A. Japonica*) is a very valuable addition to our fall blooming plants, giving colors not easily attainable at this season. The type bears flowers of a rosy red, but by far the finest form is the white one (Honorine Jobert or alba) and its varieties, Whirlwind and Lady Ardilaun. The Honorine Jobert is pure white, two to three inches in diameter, borne on long footstalks springing out from a tufted mass of leaves. Lady Ardilaun is similar in habit, with broader petals, while Whirlwind is semi-double, and a very welcome visitor.

Gaura Lindheimeri, a perennial from Texas, has been blooming nearly all summer. It is a semi-decumbent plant with woody main stems bearing slender spikes of small curiously shaped rosy white flowers in constant succession. It seems hardy with ordinary winter protection. [And easily raised from seed sown in spring it blooms from mid-summer till frost.—ED.]

Ipomœa pandurata, the man-of-the-earth creeper, and one lately sent out as *I. Mexicana*, what is it?—[*I. paniculata*.—ED.] are at their prime, and will continue to bloom until frost. The former is decidedly the best in color, being white with a purple throat, while the latter is a dull purplish red. They are not rampant vines and are at their best when climbing over low-headed trees. On young hickories they look well, as they generally are long in bloom after the hickory has lost its leaves. *I. pandurata* is hardy under good protection [The tubers of old plants bury themselves so deep into the earth as to be perfectly hardy even at Chicago.—ED.] while the other is best wintered in the cellar.

The hardy ornamental grasses are now throwing up their tall flower spikes which will soon feather out and rival the pampas grass in their beauty. *Erianthus Ravennæ* and the three forms of *Eulalia Japonica* as well as *gracillima* are perfectly hardy here.

In perusing the list of perennials mentioned in these articles as having been in bloom at various times since July 1 it must be borne in mind that there are a host of others whose time of bloom antedates that period whose blooms would carry us far back into the spring months, when bedding plants and tender annuals were still in swaddling clothes. It has been truly said that there is as much pleasure in anticipation as in realization. What a mine of pleasure a good collection of perennials is! From early spring until the autumn months there are always some plants to bloom, some anticipated pleasure always before us, some swelling buds always acting as a magnet to draw us to them in our daily inventory of our floral treasury. The very permanency of this class of plants should alone recommend them. It may almost be said of them that once planted always planted.

W. C. EGAN.

CANNA ROOTS, HOW TO WINTER THEM.

Cannas are tender plants and frost injures them, that is a slight frost will blacken their leaves as it will those of the dahlia, but on account of the great mass of stems and foliage they bear it takes quite a sharp frost to get down into the ground to injure their roots. We note this to show that it is needless to hurry and cut down the tops and dig up the roots and store them away the day after we have the first slight frost, say about the end of September or first of October. In fact the longer we can leave them in the ground with perfect safety the better for the roots, as it serves to render them more dormant and less likely to start into fresh growth as soon as stored. This is important. At the base of every cut down stem are one, two or more dormant eyes, much the same as in asparagus; as soon as the stem is cut down, the canna being an evergreen or continuous growing plant, one or more of these dormant eyes at each cut stem, conditions being favorable, will start into growth. At the base of these growths other latent eyes form, but on account of the spindled or enfeebled growths the new eyes too must be correspondingly weak; we should therefore discourage winter growth in the case of stored roots, and this is done by keeping the roots cool, but always above freezing, and moderately dry, but never quite dry.

After a sharp frost cut the cannas down close to the ground, then lift the clumps of roots, keeping each variety by itself; as the roots are apt to lift with heavy balls of earth to them, lift the clump up a foot or two with your hands and then let it fall with a thud on the hard ground, to remove part of the superfluous earth sticking to it. But don't by any means remove all of the earth. Now take the clumps to the cellar, each one being securely named, and lay them one deep, and close together, on the cold earthen or cement floor, and where they will be dry overhead, away from draughts, and cool but never frozen. There should be earth enough to each ball so that you don't need to use any other sand or earth to work in between the clumps; indeed, we find it isn't necessary to fill up these chinks at all, but a little earth run up against the outside of the roots to keep them from drying out too fast is beneficial to them. Throw a piece of old matting or carpet over them to keep them equably cool and moist.

If you cannot store them on the floor get one or more wide shallow boxes—you can get lots of old empty packing boxes at the grocery store that will answer nicely—and pack them close together and one deep into these, and set the boxes in any safe convenient place you can spare.

If you have a cool greenhouse, when you lift the clumps place them close together on the floor under the bench of the greenhouse, but away from the hot water pipes; they won't need earth, sand, or anything else drawn up to or worked in among them; enough dirt should have stuck to the clumps to answer every purpose. A warm greenhouse is a bad place for the canna roots, as they start to grow in it and become enervated.

We winter them well in a frost-proof cold frame up against the greenhouse

wall, but in this case we cover the clumps up altogether with earth, just as if they were planted. It is in this frame that we keep our largest variety of cannas. Of many roots we don't want any more than a plant or two in summer, and as it would be useless to keep over a large clump for that purpose, when we lift the variety we break up a clump and save one, two, three or more, single pieces with crown eyes to each, just as we appreciate the variety, and plant these close together in rows in the frame. Every piece lives and is planted out the following spring.

We have also kept them in cold pits or deep frames, such as we winter tritomas or small evergreens in, but with indifferent success, the quarters were too damp and cold for them.

In fine, a winter temperature of 40° to 48° suits them best, and they must be kept slightly moist all winter, but never wet.

The above notes are written in response to several inquiries on this subject.

HARDY NARCISSUS.

The following is a list of the best hardy narcissi in my estimation. It is a difficult matter to select from a genus where all are good, but I am sure these will prove satisfactory under ordinary garden cultivation. All are hardy, easy to grow, showy, very beautiful, and likely to give satisfaction to anyone who may plant them.

Narcissus Horsfieldii, golden yellow trumpet with white perianth.

N. Emperor, yellow trumpet with primrose perianth, the largest of the trumpet section.

N. princeps, pale sulphur yellow flowers.

N. Sir Watkin, perianth rich yellow with yellow cups tinged with deep orange on the margin.

N. Empress, white with golden yellow perianth.

The foregoing are the largest flowered of the daffodils and are of easy cultivation, in a deep rich soil. For three years past I have however found that *Horsfieldii* bulbs have been affected with some disease which causes the bulbs to rot quickly after being dug, also in bulbs which have been left in the ground for two or three years.

N. Poeticus ornatus, large white flowers with a red tinged cup.

N. incomparabilis, double white tinged with orange.

N. Telamonius fl. pl., golden yellow and very large.

N. Jonquilla, deep yellow very fragrant flowers.

N. maximus, white with golden yellow perianth.

N. cernuus, creamy white drooping flowers.

N. rugilobus, sulphur white perianth and golden yellow trumpet.

N. Pseudo-narcissus, yellow trumpet with sulphur perianth.

N. Leedsii, Eucharis daffodil, white perianth with silvery white crown.

N. odorus, Campernelle, flowers golden yellow and delightfully fragrant.

N. gracilis, silver jonquil, a late flowering sort with fragrant yellow flowers.

N. Burbidgei grandiflorus, white perianth with citron yellow crown.

N. biflorus, flowers white with a delicate yellow crown.

N. sulphureus Leedsii, very large yellow flowers with cup tinged with deep orange.

N. Barri albidus, flowers sulphur white with yellow crown.

N. Henry Irving, flowers golden yellow, very large.

N. Capax, Queen Anne's double daffodil, flowers large double lemon yellow.

N. pallidus præcox, flowers large pale sulphur, and very early.

N. obvallaris, Tenby daffodil. Primrose trumpet with yellow perianth; large and very early.

N. Poeticus fl. pl., gardenia daffodil. Flowers large, very double and pure white.

The foregoing do not embrace nearly all the good sorts of daffodils, but include a succession of bloom from the earliest to the latest and will thrive in any rich soil. The bulbs generally flower much better the second year after planting. *N. Tazetta* or polyanthus narcissus together with *N. Bulbocodium* and its varieties cannot be safely planted in open borders in this latitude, though they will occasionally come through the winter in safety.

Passaic, N. J. GEO. C. WOOLSON.

YELLOW COSMOS—BOLTONIAS.

I agree with L. C. L. J. that *Cosmos sulphureus*, page 6, is a failure as a cosmos, yet I consider it well worthy of cultivation. I started mine early, under glass, and got it into the open ground as early as possible. The plants commenced blooming almost immediately and have all summer been a mass of golden stars, many of them an inch and a half in diameter. Its prostrate habit makes it valuable for covering bare spots in the shrubbery, as it seems to enjoy a partial shade. Mine has been most proliferous in bloom. I should be pleased to distribute seed to our friends as long as it lasts gratis.

I consider *Boltonia latisquama* and *B. asteroides* two of my dearest friends. Divide the roots every year to attain perfection in them. *Latisquama* is beautiful for two or three months.

Moosup, Ct. J. E. PRIOR.

POLYGONUM CRISPUM.

J. L., Milford, Pa., writes: "I send you a flower and leaf of a plant which I found growing near an old house that has not been occupied for many years; the plant is very ornamental, standing four feet high and about the same in breadth, and is covered with flowers now. Can you tell me what it is, as I want to transplant it to my garden?"

It is the lesser form of *Polygonum cuspidatum* known as *P. crispum*, a really pretty and deserving hardy perennial, and especially valuable on account of its late blooming nature. But as it is quite a wanderer at the root, plant it where you can allow it to spread without hurting neighboring plants. Even in the border, however, with a little attention on your own part, there is no fear of it becoming a nuisance.

HARDY ASTER AND ADLUMIA.

We have an unusually fine perennial aster now in bloom; think it must be the white form of *A Amellus* [No, not *Amellus* surely. Isn't it *Novæ-Angliæ*?—ED.] though it grows three feet tall; the foliage is dark and quite resinous, and the stems very stiff and well branched, are tipped with narrow petaled white blossoms an inch and a half across, having pretty yellow centers that turn dark with age. We have but two plants, the original one, gathered from the roadside, and a self sown seedling from it, and we have never found another. The seedling stands beside a clump of *Pyrethrum uliginosum*, and is a much more beautiful plant, which is an ungrateful thing to say, since we shall be glad to cut the pyrethrum after the aster is out of bloom. This aster is especially desirable for supporting heavy spikes of gladiolus, as it furnishes the needed relief in style of bloom at the same time; and when the glass is draped with the fern-like foliage of the adlumia (a gentle pressure of the finger will cause a spray to stay in any position) one has an ideal arrangement of flowers. We allow the seedling plants of adlumia to grow at will for the first summer, and as soon as the leaves are of a suitable size they are in constant demand for "green;" it combines tastefully with all sorts of flowers, and is especially useful in mitigating the rather bare look of the tall straight vases now so much in vogue. H. N. B.

Melrose, Ind.

IS MADEIRA VINE HARDY?—Oakmont, Pa., writes: "I noticed in yours of the 15th the statement that Madeira vine tubers are tender. This has not been my experience; they will kill down in winter as far as frozen but no lower. Mine survived all last winter with only four or five inches of leaves over them." We look upon bulbs of hyacinths, tulips and Siberian squills as being hardy because if they are encased in the frozen earth in winter they remain unhurt. Many gladiolus, crinums, ixias and others will survive in the ground over winter if the bulbs are beyond the reach of frost by reason of depth or covering; but if caught by frost they would be killed. We can not call them hardy. The tubers of *Apios tuberosa* if encased in frozen earth remain unhurt, and we call them hardy; but the tubers of Madeira vine if caught by frost get killed, so we term them tender. We store our common potatoes in pits covering them just enough to exclude frost, or if we wish we may leave them in the drills where they grew with impunity if we mulch the drills deep enough to exclude frost from the tubers. Now we couldn't call the potato a hardy plant. On the other hand the tubers of Jerusalem artichokes may be left in the ground in the frost without any covering and no injury will befall them, because they are quite hardy.

IS THE CALIFORNIA VIOLET hardy at Two Rivers, Wisconsin? asks J. E. H. We cannot tell. That information can be obtained by experiment only.

Trees and Shrubs.

FALL PLANTING OF TREES AND SHRUBS.

Now is the time to plant, and the sooner it is done the better. If your ground is well sheltered and well drained and you simply wish to move some evergreens from one part of your garden to another you can do it now with safety. But if you reside in a cold or bleak locality better let the transplanting of the evergreens alone till the spring time. In moderately mild localities, for instance from New York southward, we can transplant yews, arbor vitæs, Norway spruces and other heavy rooting evergreens with almost as much safety now as in spring; but we would advise cutting them well in at the time, and sprinkling them overhead twice a day for a week or more after planting should the weather be dry and windy. Pines, junipers, Oriental spruces and other thin rooting sorts had better be left for spring. For Chicago, north and west, fall planting of evergreens is too risky; wait till spring. Indeed, even at Dosoris

A SCREEN OF CAROLINA POPLAR

we protect our fall-planted evergreens the first winter with a good thick mulching of sedge, other litter, or tree leaves over their roots against hard frost, and branches or other shelter for their tops from the cold winds. To bank up a mound of earth over the roots to firm the plants against winds, shed water, and help protect them from hard frost is often recommended for evergreens, but in the case of evergreens branched to the ground and set out in our gardens this is impracticable. For apple, pear and other fruit trees out in the orchard this earthing up is both practical and beneficial.

With care most any deciduous trees may safely be planted in fall, but, we should prefer leaving oaks, beeches and magnolias till spring. Whatever has to be done in this line should be done as soon as possible to give the trees a chance to get a little hold of the soil, or at least plumped up and their wounded roots well on to healed before winter sets in. There is nothing new in planting. It consists of carefully lifting the plants, preserving as many roots to them as possible, never letting the roots get exposed to wind, sunshine or other drying influence, cutting off clean the wounded ends of roots, and pruning the branches or tops of the trees at planting time. For planting dig out a deep, wide hole for each tree, removing the poor or subsoil earth and replacing it with good soil; fill the hole pretty well up, having it like an inverted basin, high in the middle and deeper towards the sides. On the hillock in the middle, which should be deep enough for the tree to rest on, set the butt of the tree, spreading the roots outward on all sides; now fill in some fine mellow earth among them, pack firmly and level up evenly. Or, if you choose to give the tree a good watering, a good practice in light land but not advisable on clay soils, leave a little basin around the stem and fill it up with water; when it settles level up the ground.

A good many people nowadays don't believe in heading in deciduous trees at planting time and insist they have better success when they don't do it. But our experience is positively in favor of pruning hard at planting time.

All deciduous trees exposed to winds in winter are the better of the support of a stout stake. Tie the stem to the stake with strong, soft cord, a hay rope, or better still a piece of marline passed through a bit of old rubber hose—just hose enough to go around the tree and keep the string from cutting in to it.

THE CAROLINA POPLAR.

The Carolina poplar (*Populus monilifera*) is one of the commonest of trees, it is easily propagated, easily raised, plentiful in nurseries, and it is a tree of very fast growth, and great hardiness. In fact young trees are really handsome plants. It is largely used to plant on bleak exposures to make a quick shelter, with white maple, box elder, and *Catalpa speciosa* as associates. It and these other trees are also often interplanted with more valuable permanent trees, say walnuts, oaks, etc., to act as nurses, and as they begin to crowd the others these are cut out a few at a time. They are not uncommon as street trees; indeed growing in the tainted soils with their roots under the sealed pavements of streets, few trees keep as healthy as does the Carolina poplar, and it submits very kindly to the pruning shears. It is largely used as a street tree in the city of Washington, D. C. Its principal use as a street tree however, is as a supernumerary, filling in the long intervals left between young hard maples, elms, or other desirable trees. The proper distance apart for large shade trees on our streets is 50 feet. During the first few years after planting so wide an empty space is very discouraging to citizens crying for immediate shade, and it is to fill this gap that Carolina poplars are used temporarily, one or two or three poplars—mostly one—being planted between every two maples, but the moment the maples grow out enough to touch the poplars, the latter are cut out, giving the maples all the room. We can keep the poplars from growing out to touch the maples for a long time by shortening in their branches, treatment they submit to with good grace.

Besides using them as trees they make a capital and quick hedge-screen. The accompanying illustration is engraved from a photograph, sent to us by L. S. E. of Rochester, N. Y., and aptly shows their eligibility for this purpose. Our correspondent writes: "This is a hedge of five years' growth of Carolina poplar. It is certainly very satisfactory as a quick growing screen." For such a purpose, if you want a quick, thick effect, of no great height, set the plants about three feet apart in the row; but in the long run four feet apart will be better. The first year after planting, wait till towards spring, then cut the plants well back, this causes them to thicken up from the bottom and increase in fullness. And every spring after, head them back considerably, it will keep them leafy at the base, and they will make a tall vigorous growth in summer anyway. Another plant that makes a very beautiful quick screen in the same way is the laurel-leaved willow.

RHODODENDRONS, AZALEAS, ETC.

Let me say, with Mr. Parsons, Sr., with whom I conversed two years ago: beware of rhododendrons, azaleas, andromedas, etc. grown in peat soil. I moved a lot last spring that were planted three or four years before and some of them were just about the same as when planted; roots still within the original small black ball and leading a miserable existence. I added a lot of 63 rhododendrons gotten from Mr. Anthony Waterer through Mr. J. W. Elliott, Pittsburg, and these had been grown in sandy loam. They bloomed earlier than my others, by two to three weeks and have grown this first season six to eight inches, with lots of bloom buds out for next year. Also I added to the azalea bed 36 grown in sandy loam, and though some had small tops the roots were large and bunchy, so they made a fine start. I have a bed of 86 azaleas and a bed of 86 rhododendrons; replanted both last spring, throwing all dirt out three feet deep and filling in about one foot deep of stones and brick bats, with two feet of old sods from a meadow, first putting some long rubbish on top of the stones. Our valley is all underlaid here with limestone; in grading my lawn I quarried about 1,000 perches of stones out to get the grade right. As I was afraid the soil might not suit rhododendrons and azaleas, I had a chemical analysis made and found only about one-third of one per cent of lime in the soluble part with about one per cent more of insoluble; as the meadow sods had a considerable amount of sand, just right for the purpose to make it loose and porous, I feel pretty safe so far as lime is concerned, and all the plants are doing finely so far except the unfortunates above mentioned with cramped feet like an unfortunate Chinese lady. They will come right in time probably. Just now my azalea and rhododendron beds are

ABLAZE WITH CANNAS.—Mme. Crozy, Alphonse Bouvier, Capt. Suzzoni, Florence Vaughan, Sunshine, Egandale, Queen Charlotte, etc. The soil suits them admirably and with plenty of water they are now a blaze of glory and I believe the crowding of azaleas, etc. will not be an injury until they get larger. I have some fear, however, that it may make them less able to resist cold next winter. My rhododendrons all came through last winter, though some were roughly used. Many of my evergreens were injured and some killed. Retinosporas especially suffered.

TRANSPLANTING WILD KALMIAS.

I have frequently seen advice in GARDENING not to try to move kalmias from the woods to lawn, but to take nursery stock on account of the great mortality with former. Well, last year I moved seven or eight large ones, 3 to 3½ feet, with stems the size of a broomstick, and every one lived and is doing finely, although it was so late they had shoots three or four inches long starting, and

when planted these were all wilted and drooping. The secret, however, was in careful planting, firming the earth thoroughly and *severe pruning*. This I believe essential with some evergreens, especially large ones. Encouraged with that success I moved 42 small ones this spring to my lawn, every one of which is doing nicely.

TRANSPLANTING VARIOUS WILD TREES.

I have also successfully moved 26 hemlock spruces from their wild habitat. As to large trees I have four white beech 6 to 8 inches in diameter, four or five scarlet maples 8 to 9 inches, two sugar maples same size, one pin oak 11 inches, one white ash same size, one tulip poplar about 8 inches, and others brought from one to four miles distant to transform my place from a field to a lawn. They were moved quite successfully and with care are doing nicely. A year ago I replanted my shrubbery (about 1,600 shrubs on three acre lawn) according to plan furnished by Mr. J. W. Elliott, and am well pleased with the result. I have no flower beds on my lawn and don't intend to have any, but plant perennials freely among the shrubbery and annuals in flower garden at the rear. Well, this is enough for once; if it doesn't tire your readers too much I may add a little some time later. [Please do. Such notes of actual, practical experience are just what we want.—ED.] Before closing I wish to say that

GARDENING is my most welcome paper and it has been of immense benefit to me as well as pleasure. Practical, common sense wins every time. A. F. HUSTON.

Coatesville, Pa., Sept. 26, '95.

CLEMATIS—PRIVET, HOW TO PROPAGATE.

J. M., Dayton, Ohio, writes: "Give me a few hints on the propagation of clematis in varieties, and also of California privet."

CLEMATIS.—The large flowered varieties of clematis are propagated from cuttings—generally 2-jointed—of the half ripe wood taken in summer, and as with roses it is better to take the cuttings from indoor than outdoor plants. But they don't always root very kindly. They may also be grafted on pieces of stout fleshy roots of *Flammula, paniculata*, or other vigorous sorts, using either green or ripe wood. This too must be done indoors. Or the old plants may be layered, spreading the vines out on the ground and elbowing them at a joint two to three inches into the soil, tamping it firm; in fact each vine may be layered at several joints along its length. All species of clematis may be raised from seed; layering and crown division are also practiced. Seed often takes six or twelve months to germinate.

CALIFORNIA PRIVET.—From cuttings of the ripe wood planted in rows a foot or more apart in the open ground. The cuttings may be 6 to 9 inches long.

IVY IN GERMANY AND FUCHSIAS IN IRELAND.

As to the ivy mentioned in my former letter I may say that I saw it growing on an ancient watch-tower that was built in the old city wall that formerly encompassed the capital of the Roman provinces of Charlemagne. The city was Aix-la-Chapelle, about 40 miles west of the Rhine. The soil was very rich and the vine very old, hundreds of years apparently, the leaves were of course very coarse, and the vine clung to the ancient stonework as tenaciously as the smaller variety does to trees in England.

In southern Ireland I saw fuchsias growing wild. At Glengariff they used them for a hedge in front of the hotel where we remained. In the rear of the hotel there was quite a mountain, perhaps 2,500 feet high; in looking up the same we noticed a patch of color so brilliant I asked a native what it was, and was informed that it was the wild fuchsias in bloom; there were also specimens of fuchsia trees in the grounds about the hotel that would stand 16 feet high, and were 5 inches in diameter at the base. I have never seen such a wealth of beauty in vegetation as in southern Ireland. I do not know name of the fuchsia, but it was a common red sort, flowers small. [The large leaved ivy referred to was, probably, *Raegneriana*. We mail you a sprig of it for old acquaintance sake. The fuchsias largely grown as outdoor hardy plants in Ireland are *globosa* and its variety *Riccartoni*, but mostly the last named, which is the hardiest of all. None is hardy at Dosoris.—ED.] C. W. R.

Whitehall, Mich.

A DEUTZIA RECORD.—Mr. Egan says: "Deutzias require winter protection near Chicago." Here in Crown Point, Ind., a few miles from Chicago, there is a ten year old plant of the Pride of Rochester deutzia that is ten feet high, and is no longer covered in winter. It outgrew barrels when about four years old, and has had no other protection since that time than a mulch at its roots. This plant stands at the northeast corner of a house in rather poor soil and blooms abundantly every June. F. N. B.

HALE'S PAPER-SHELL HICKORY.—Mr. Andrew S. Fuller of Ridgewood, N. J., writes us: "It is near a quarter of a century since I named and described this splendid variety, consequently I feel some little interest in its history, if nothing more. Our friend Mr. Trumpy should not have relegated it to Englewood (see page 25), many miles distant from here; he should have written Ridgewood, for it originated here on my neighbor Hale's farm."

Chrysanthemums.

CHRYSANTHEMUMS.

At present the flowers seem to be quite backward, for while I had Mrs. M. M. Parker in bloom the 1st of October last season it is not as yet showing color. The buds of the Jeannie Falconer are almost the size of a dollar, extra strong and are showing color. I expect it in soon and it will be fairly early. H. Sunderbruch will be one of the first and is the best early large yellow in commerce. It is now about half developed, the habit is healthy and medium to dwarf, it is best on crown buds. Of early whites, Madame F. Bergmann is by far the best, although it lacks size. There is one, Lady Fitzwigram, of English origin, which I have had for the past three years that comes much earlier, in fact it is the earliest that I know of, opening about the middle of September, the same as Delaux early varieties. It is of dwarf but weak habit and the flower is thin and spreading. I note this mentioned by Smith of Michigan, but cannot, from my three years' experience, recommend it as being of much value or any better than Delaux early ones which have been cast to one side. One of the best real early pinks which I know of, and it is above medium size, is Mrs. G. B. Darby. M. M. Johnson, Nemesis, and Mrs. Parker are three early, fine, promising new varieties of last season's introduction. They are all very early and strong, not being taller than Ivory, and for this reason valuable for side bench varieties. THOS. H. SPAULDING.

Orange, N. J.

Aquatics.

AQUATICS.

In GARDENING, October 1, page 24, Mr. Wm. Fitzwilliam speaks of *Nymphæa odorata* blooming from the middle of May till the approach of cool weather. Out here it blooms fairly well in May and June, but after that very sparingly. But the European water lily *N. alba* blooms splendidly with us all summer long.

THE EGYPTIAN PAPER REED (*Papyrus antiquorum*) does admirably in our pond with six to eight inches of water over the tub it is planted in, gaining at least five times its size during the summer.

ARUNDO DONAX VARIEGATA will winter well in this part of the country when planted on drained soil and covered up with straw or leaves. Some of our plants on drained grounds survived the '93-'94 winter, whereas others growing on low wet ground were all winter-killed, both having the same protection.

JAS. JENSON.

Sup't of Humboldt Park, Chicago.

The Greenhouse.

BUILDING A GREENHOUSE.

A Constant Reader, Chicago, writes: "On the west side of my residence I have a single frame hot bed 3x6 feet, but have not so far been able to raise successfully enough plants to fill my little garden around the house; it has been either too cold or too warm. Should I build a lean-to greenhouse in place of this hot bed—have a space 7x10 feet to spare for this. I have no means of heating it—except perhaps with an oil stove—but thought it would do better than this hot bed in raising plants from seeds and cuttings in the spring. I believe I could manage this better than the hot bed. Diagram of space enclosed.

"Should there be a solid wall along the stair railing to protect against north winds, with glass roof and glass west and south sides? Ought I to dig out a foot or two or build on the level? How arrange it inside to best advantage? How ventilate? By advising how to build this in an inexpensive manner you will much oblige me."

A 3x6 hot bed is very small; there isn't body enough of manure in it to hold the heat long. Build the greenhouse by all means. Get one of the Chicago greenhouse builders (see adv. in GARDENING) to look at the place and give you an estimate on the job; he can build the greenhouse better, neater and much cheaper than you can have it done by any ordinary carpenter. A plain, tight house with wooden sides should answer. Let the gable against the kitchen rails be of glass the same as at the other end, and have one or two light-weight (½ or 5-inch tongued and grooved clear pine) shutters to fasten up against it on the outside in winter, and take off in spring. Don't sink the house under ground; our most successful florists never do that.

Ventilate with two 3½x3½ feet ventilators on top. Have door in middle of south end as you show. A nice inside arrangement would be a 2-feet wide bench in front, then a 2-feet path, and a 3-feet wide bench at back and about 4 to 6 inches higher than the front one. About the gas stove for heating, much depends upon its perfect condition—gas fumes are so detrimental to plants. Keep a wide pan of water sitting on top of it all the time.

HOW I GROW CACTI.

The illustrations herewith presented have been engraved from photographs of two of my grafted cactus and a night blooming cactus (*Phyllocactus latifrons*). In grafting I selected both pereskia and columnar cereus stocks, and grafted them with *Epiphyllum truncatum* at the same time, and as they are now about three years old, it is interesting to note the difference in the growth, the one making a thick bushy head, while the other hangs in long graceful branches. Both are very satisfactory to me, bloom profusely, and have been very much admired. The plants are now in 10 and 12 inch pots, respectively, which will give a very fair idea of the size of the heads, the larger plant is supported by a heavy iron stake, while the smaller or columnar stock has no support whatever. I have several other fine grafted cactus, among them, one, a columnar stock, three feet high, grafted with *Epiphyllum truncatum* at the top and twice on the sides at intervals of twelve inches, which gives it a very fine appearance; it was a mass of

PHYLLOCACTUS LATIFROSS BY FLASH LIGHT

bloom for more than two months, during the past winter.

The picture of the night blooming cactus was taken by flash light, in my library August 30 last, as it had ten fully developed flowers in one night, I thought it worthy of note. At various times during the summer it has borne six flowers, and the night following the one on which the picture was taken, the bud on the lower left hand side opened. I mention the fact, to call attention to the rapidity with which the buds expand, or develop at this period. There are still a number of buds on the plant, which is now about seven years old, and is a fine specimen, measuring nearly five feet from the pot to the top of the specimen. It has a tendency to throw out long shoots, which I keep pruned off, the result appears to be beneficial to the plant and keeps it symmetrical.

During the summer, I set the plants out in the open air, on the north side of a tight board fence in the shadow of tall maple trees, in which posit on they receive little or no sun; the light however is good and they have plenty of air, and this appears to be the place best suited to their requirements. Two years ago I placed them in a position where they had the full benefit of the direct sunshine, from early morning until two o'clock in the afternoon; the result was the leaves were sunburnt—turned yellow, and I had very few flowers, in fact I nearly ruined my plants in my desire to "ripen the wood for bloom," as I had been advised to do. As the plants are in large pots, I

EPIPHYLLUM ON PERESKIA STOCK.

do not plunge them, but water them well every day and frequently twice a day, in very hot dry weather.

I have a small greenhouse in which I winter them, in a temperature of 60°, during which time I water them not more than twice a week and as the days lengthen and the sun gets stronger, in the spring, I shade the glass and increase the water supply, as I find they cannot stand the sun that my other plants delight in.

The soil I use is from my compost pile of rotted sod, manure and sand, well worked together; occasionally I scatter about a teaspoonful of bone meal, or some "food for flowers" over the soil in the pots and work it into the soil, the constant watering carrying the nourishment down to the roots.

I never hesitate to pinch back a branch of the *truncatum* to bring the plant into shape. These were grafted in the spring, although I have met with the same success by grafting in the fall and winter.

M. H. Jr.

Altoona, Pa., September 13, 1895.

THE GREENHOUSE.

Greenhouse plants of all kinds should now be indoors, snug and comfortable for the winter. Keep them rigidly clean. A good many of the old leaves are apt to turn yellow and drop off, but don't wait for them to fall, pick them off as soon as the yellowness shows. While free ventilation in fine weather is good sudden bursts of cold as may be caused by opening the ventilators wide all at once, or of heat as by shutting them too early all at once, should be avoided. Cold draughts of air through the greenhouse isn't good for the plants; avoid draughts. Between now and New Years we can economize in

EPIPHYLLUM ON CEREUS STOCK

the matter of fire heat; after that when fresh growth begins again we must give a little more warmth.

Don't let any fallen flowers lodge on the leaves of tuberous or other begonias, as they very soon rot a hole in them. The tuberous varieties perfect their seeds very well this month; pick all the ripe seed pods from the good varieties and save it for sowing a month or two hence.

If you cannot give the Lady Washington geraniums a place on the bench set them at the front or under benches; after the chrysanthemums are past most likely room will be more plentiful. As the leaves die off the amaryllises remove them for neatness' sake.

Look out for mealy bugs on old plants from out of doors in the summer time; they generally go down about the roots, but when brought indoors in fall they get up from the ground and infest the tops.

What lovely little flowers those of the hybrid streptocarpuses are. They are blooming and seeding now. Save the seed and sow it, for the plants are really beautiful and free flowering. Don't roast the callas; although they luxuriate in the open air in full sunshine, a very thin shade in the heat of the day helps them considerably.

Dig up and pot for winter forcing deutzias, spiræas and other neat, free hardy shrubs.

Read the greenhouse notes of last issue, they are timely yet.

FIRING A SMALL GREENHOUSE.

A reader writes: "I have a small detached span-roofed greenhouse, heated by an ordinary coal stove set under the middle bench at one end, and a string of sheet iron smoke pipe run under the bench from the stove to the chimney at the

other end. All manner of plants are grown in this greenhouse. But just now I am in a quandary about whether or no I should light a fire in the house or not. Please tell me what to do?"

It isn't a question of fire or no fire so much as of general attention to other details. Remember frost must be kept out at any price, and if you must have a fire to do this, light it. In moderately mild weather if you economize the sun heat in the day time you won't need fire heat at night. To begin with let the greenhouse be perfectly tight, every pane of glass whole, the ventilators and doors shutting close, and no open crevices anywhere. In the morning let the sun warm up the house a little, say to 60° before you give any ventilation, and even then open the ventilators only an inch or two at first, and in half an hour or an hour a little more, never ventilate full wide all at once. Water your plants in the morning or forenoon, giving them plenty; and damp down the house if the day is bright, syringing any plants that need it, but this should be done before 10 o'clock or 11 at latest. Early in the afternoon, say at 2 o'clock, partly shut down the ventilators, and by 3 o'clock shut them down tight, the object being to catch and retain considerable sun heat. No matter if the house is a little warm, with no fire heat, it will soon get cool enough, and the sun heat is genial and healthful to the plants. In the afternoon while you should water every plant that is dry, be careful not to spill a drop of water on the plants, benches or floor, let your aim be to keep the atmosphere sweet and dry. So treated, no fire heat will be needed in such a greenhouse so long as the temperature does not fall below 40° for most ordinary plants or 38° for many. If the ventilators have been left open so late in the afternoon that the inside temperature is only 3° or 5° higher than that outside, and the inside atmosphere is raw and damp or the plants at all wet overhead, then a little fire heat should do good. But the heat from a coal stove is pretty parching in a greenhouse; don't use anymore of it than you can help and have the house damped down well so that the moisture from the damping may counteract the parching from the stove.

BULBS FOR WINTER FLOWERS.

FREESIAS.

There are two kinds, namely, *F. refracta alba*, white, and *F. Leichtlini*, yellowish with orange blotch in throat. The white one is the favorite, but both are fine and there are selections of each. Get them at once and pot them, the majority now, and some a month from now for succession. Five or six-inch pots are a good size for them. Use the same kind of soil as for hyacinths; fill the pot a little over half full of soil, then plant the bulbs, 7 to 9, or one or two more according to size of bulb or pot in each, and fill up with soil to within barely an inch of the brim. Set them out of doors on a bed of ashes and where they will be safe from warm sunshine. In a cold frame and shaded with tilted-up shutters is a good place, but the moment they begin to appear above the ground the shutter must be removed. We mustn't bury them overhead with loam or ashes, for they soon begin to grow and the burying would spindle and weaken them at the neck, our object must be to get them as stocky as possible at the beginning. They are hardier than paper white narcissus.

IXIAS, SPARAXIS AND TRITONIAS are real pretty and interesting bulbous plants from the Cape of Good Hope, and if treated like freesias they can be grown very nicely

LACHENALIA is a genus of bulbous plants we don't do enough with. They may be grown in pots or in suspended wire baskets as we do achimenes. Get a small wire basket—a small sized ox muzzle—and line it with moss, fill in with light rich soil and plant ten or a dozen bulbs in it and so that they will not only grow up from the top but also through the sides of the basket. After potting keep them in a cool, somewhat shady place, but away from draughts, and bring them indoors before sharp frost comes. *Nelsoni* and *Quadricolor* are two fine varieties.

DOUBLE-FLOWERED NASTURTIUM.—Please let me send you a rooted cutting of the only thing in my collection that I never saw mentioned in GARDENING—a double-flowered nasturtium. I had three of them. One I planted out in the ground and let it run as it would, and one I trained to a string, and neither blossomed. The third one I put in a basket and let it hang down, and it was full of blossoms all summer. G. H. S.

Woburn, Mass.

Orchids.

ORCHID NOTES.

The work in the orchid house for the next few months will consist chiefly in attention to careful watering, sponging the foliage and repotting or rebasketing any plants that may need it; any that do not need it should be gone over carefully and as much of the old potting material removed as possible without injuring the roots, and replaced with clean peat fibre. The best time for repotting orchids is a few weeks before their growing season commences, but it can be safely done anytime while they are dormant. In repotting break the old pot so as to save all the live roots possible. Cut away all dead roots and remove all decayed potting material, and repot into as small pots as you can conveniently do so. Over-potting is one of the errors of beginners, and it is a fatal one for this reason: A large mass of potting material will not dry out quickly enough to keep in a sweet condition, and consequently the roots will decay. For most species the pots should be filled two-thirds with broken pot sherds, and the crown of the plant elevated an inch above the rim of the pot. If baskets are used let them be shallow, two inches deep is sufficient for most species—certainly for cattleyas and lælias—they may be deeper for ærides and vandas; but shallow baskets dry out quicker than deep ones, and this is a desideratum. The potting material used by orchid growers around here consists of three-fourths clean peat-fibre, with the earthy matter thoroughly shaken out, and one-fourth clean live sphagnum moss mixed in. For vandas, ærides, phalænopsis, etc., no peat is used, simply live sphagnum, broken bricks and nodules of charcoal.

Dendrobiums, cymbidiums, cypripediums, and phaius require no shade till about March 1; but direct sunrays must be tempered for such plants as cattleyas, lælias phalænopsis and odontoglossums. Where practicable a portable shading is best. Orchids must have plenty of indirect light, and occasional sunbeams will not hurt any. They must never be grown in the shade of other plants, as in that case they produce watery, immature growths which are liable to damp off.

The following orchids are in bloom at present (Sept. 20) on this place: *Cattleya Bowringeana, C. labiata, Dendrobium Phalænopsis Schroderianum, D. formosum giganteum, Lælia Perrinii* and *Phalænopsis Esmeralda.*

WM. FITZWILLIAM.

Baronald, Orange, N. J.

The Fruit Garden.

THE FRUIT GARDEN.

It is about time now that all the apples and pears are picked; in fact we have got to pick them to save them from falling. See that the picked apples are in barrels well ventilated at the sides, and kept dry and cool, and that the barrels don't rest on the bare ground. Before storing them by for the winter overhaul them again and remove every bruised or broken fruit or any showing a speck of decay. Get them into the barn or cellar before a sharp frost touches them.

We have got to gather all our pears now. Look over those gathered a week or two ago and remove every fruit showing a speck of decay or a bruise. If you have some fine Anjou and other late pears it will pay you to get a lot of soft paper and wrap up each perfect fruit by itself, as we find oranges wrapped up, and store these in shallow packing boxes or in drawers in a cool cellar where the atmosphere isn't either musty or very draughty. Pears now in use as Seckel, Sheldon, Belle Lucrative, Bosc and the like require more frequent overhauling than do later sorts.

As soon as you have cut the grapes from your vines prune the canes all ready for next year's bearing. If you leave them exposed over winter there may be no need of untying and taking them down from their stakes or trellises; but if you intend burying the canes over winter, better unfasten them altogether at pruning time. In pruning keep in the short jointed stout canes that come from near the base or main trunk of the vine, and shorten them back to as many eyes as are necessary to fill the space allotted to them in summer. Endeavor to retain healthy young canes with plump eyes near their base, and avoid long slender vines, for they soon go blind at base. And replace the old wood with new as much as practicable. Burying the vines over winter, although not necessary in the middle states, is a great safeguard, especially in the case of Rogers's hybrids and others having tender blood in them. But November is soon enough to do it in.

Most of the tender hybrids have been much troubled with mildew this year, but those of the Concord type have been unusually fine. Niagara, while not the sweetest of white grapes, has been the most reliable; in health, crop, bunch and berry it has been fine, and we are going to plant more of it. If you have any sorts that are of no use to you root them out and replace them with sorts that thrive and bear good fruit in your garden. Have all the sorts securely named so that when you wish to layer a lot of them at pruning time no mistake can be made. We raise our young plants from layers, and in this way get a big well rooted vine in a year; simply take a stout cane and elbow it into the ground, burying the elbow three or four inches deep, and enough to cover one or two joints; shorten

the end of the canes to two to four eyes above the ground, and attach a stout neat stake to each. The stake preserves the layer from accident, as being pulled up in mistake. No cutting at the elbow joint is necessary.

The Vegetable Garden.

THE VEGETABLE GARDEN.

The protracted drouth has been very severe on all kinds of vegetables, and late sowings will not amount to much.

ARTICHOKES, both globe and Jerusalem, let them alone till next month.

ASPARAGUS, when it begins to turn yellow, may be cut over close to the ground, and the tops should be burned. These tops look like something that would answer first rate as a winter covering for plants, but no, they are very poor for that purpose, all the leaves falling off quite early. If you want any roots for early forcing strip the earth off from their crowns now to let them get well "cooled" off; they will force much easier for it.

LIMA BEANS.—Early July sowings of both Henderson's and Jackson Wonder dwarf beans should now be in good bearing, and if they had been covered with a frame and sashes, and these covered in cold weather and at night with mats or straw enough to keep out frost we can pick green beans till November. The same with

STRING BEANS sown as late as the end of August. But we have to soak the ground with water from the hose to get the beans to grow at all, for the ground is very dry. We have the frames banked around with rotted manure, when the beans are past and the frames removed the manure is spread broadcast on the ground and dug in.

BEETS on account of the drouth have had a hard struggle; our main crop will depend on those sown the end of July; August sowings will be pretty small. North of New York they should be pulled for storing about the end of this month, but we can leave them out till the first of November. When pulling never cut the tops off, no matter what books or periodicals tell you to do so, instead give them a twist off at the neck with your hand. The root shrivels less and keeps better. After pulling and topping gather them into piles of two or three bushels and let them stay there for a few days before pitting them, placing enough of the tops over them to keep out frost.

BRUSSELS SPROUTS.—If they aren't hearting up enough nip out the terminal head, this will throw the energy of the plant into the sprouts. Open, flabby sprouts, although good enough to the taste when cooked, are never in demand, we always want the hard-hearted ones. Let them stay in the ground till just before there is danger of its freezing up.

CABBAGE, INCLUDING SAVOYS, we let stay in the ground till November. The green worms are quite bad this year, but a pinch of fine, oven-dried salt dusted over and into the heads destroys the insects. Leave

CURLED KALE in the ground as long as you do Brussels sprouts.

CARROTS.—Treat as recommended for beets. All sown before June are kept aside to feed to the cows and horses; the later, preferably July, sowings are the ones saved for culinary purposes. While a little frost won't hurt them in the ground, the roots when out of the ground are easily injured by frost, so cover them up when you harvest them.

CAULIFLOWER.—If you have any that has not headed big enough to use, or only formed buttons, lift them, strip off a few of the outer leaves, and set the plants, close together, in a cold frame that can be well covered up from frost. They will head nicely between now and New Years.

CELERY wants water and earthing up. Using boards up against the sides of the rows of celery rather than earth gives cleaner and whiter hearts and it is quite as brittle and well tasted. Cover it up or earth it up to the top before sharp frost comes.

CUCUMBERS out of doors are over for a season. But we can have them in hot beds or in greenhouses. They need a minimum of 60° at night. The short stumpy varieties, as White Spine, are of very little use for winter work, they are so short-lived, use the long ones like Telegraph.

ENDIVE should be gathered into round heads and tied there with a piece of matting to blanch the inner leaves and make them tender. It takes a long season to mature. The main crop is usually sown about the end of July, with a later sowing early in August.

HORSERADISH.—Before hard frost sets in dig up enough good roots to last you over winter. November is generally soon enough for this, though.

LEEKS may be let stay in the ground as long as horseradish, for they are perfectly hardy.

LETTUCES.—Late August plantings are still in good condition out of doors. But September plantings should have been made in cold frames; they are now half grown or more. Keep them somewhat warm to have them tender. It isn't a case of how hardy a lettuce is, it is of how tender, and we cannot have tender lettuces if they are exposed to frost and sleet. For December and January lettuces we sowed in September and have them planted in cold frames.

PARSLEY.—Either in a cold frame, or planted in a box to put into a warm cellar, you should have a nice lot of parsley for winter. But by covering up, by mulching the ground, and then setting an inverted box over the outdoor parsley to save it from sharp frost one can have it nice and fresh till into December.

PARSNIPS.—We lift half when we lift our beets and carrots, and store them in much the same way; and let the other half stay in the ground till towards spring. They are quite hardy, but a mulching over them in winter saves their crowns from sudden changes in temperature, hence susceptibility to rot.

PEAS.—On account of the extremely dry weather our August sowings have been very poor.

RADISHES are good in the open air yet. From November on we must look to the hot beds or greenhouse for them.

RHUBARB.—If any is needed for forcing the crowns should be raked off bare, and before hard frost sets in a lot of them may be dug up carefully, but left out in a somewhat shady place where the frost may get at them without any restriction. If not subjected to a good freezing first they won't force kindly.

SALSIFY AND SCORZONERA, treat like parsnips.

SPINACH.—Keep that out of doors hoed to have it sturdy and hardy. Don't cover it up for a month or more yet, not before a hard coating of frost comes. For winter use it is well to have a lot in frames, but unless started before this it is too late now.

TURNIPS, treat like carrots and beets.

Mushrooms.

MAGGOTS IN MUSHROOMS.

C. F. G., Jersey City, writes: "I am trying to plant a small bed this fall, but there is one point upon which I do not seem to satisfy myself. I refer to maggots in mushrooms. The question is do maggots come in the manure or not? I have noticed in manure, even though only a day or two old, that little white worms appear; these I supposed were the maggots, and if they are I am afraid to use the manure."

The maggots you refer to are not the ones that infest the mushrooms at all. Get your fresh manure together and start it working, that is get it heated; it will run up to a temperature of 130° or 135° when hot, and that will kill any of the maggots or white worms you see in the fresh manure. Guard most carefully, however, against overheating, or letting the manure get white or "fire-fanged" as we call it; and to do this turn the manure often, spreading it out to cool when it gets very warm, then throw it together again and tread it firm.

OAT SPROUTS IN MUSHROOM BEDS.

A Reader writes: "Three or four days after my beds are made up there grow up all over them small straws from the old oat seeds in the manure; are these harmful to the mycelium? My bed is made up of loam and manure. Up to date I have merely cut them off with a scissors."

If the manure had been fresh and properly manipulated in the fermentation process, the oat seeds would have been all killed and couldn't grow. If they start to grow before you mould over the beds, and the mushroom house is kept dark inside, when you earth over the beds don't you destroy all of these young oats? No, in limited quantity they are not hurtful to the spawn. You are right in keeping them cut off.

GROWING MUSHROOMS.—In answer to W. L. F., Allegany, N. Y. Throw out the bed you made up in July, it isn't worth bothering with. The manure you are now preparing under the shed and which runs up to 146° and you have to turn twice a day to keep it from burning, is in too great bulk. Spread it out to cool and reduce the quantity in the heaps very much. Don't let it get over 140°. The bunches of a fine mouldy substance on your beds are not mushroom spawn at all. The temperature manure should show when ready to make up depends entirely on the condition of the manure, the preparation it has undergone and your manner of putting it into beds. A few years' practical knowledge will show you how unanswerable this question is. Olean, Bradford and Jamestown may be good markets after they take to using mushrooms, but you had better communicate with the produce agents in the large cities to begin with.

HEREWITH I hand you $4 to renew both subscriptions (my own and gardener's) another year. The paper is worth more than the subscription price, and I do not desire any reduction.

New York City. W. H. S. W.

GARDENING

WILLIAM FALCONER, Editor.

PUBLISHED THE 1ST AND 15TH OF EACH MONTH

— BY —

THE GARDENING COMPANY,

Monon Building, CHICAGO.

Subscription Price, $2.00 a Year—24 Numbers. Advertising rates on application.

Entered at Chicago postoffice as second-class matter.

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All communications relating to subscriptions, advertisements and other business matters should be addressed to The Gardening Company, Monon Building, Chicago, and all matters pertaining to the editorial department of the paper should be addressed to the Editor of GARDENING, Glen Cove, N. Y.

GARDENING is gotten up for its readers and in their interest, and it behooves you, one and all, to make it interesting. If it does not exactly suit your case, please write and tell us what you want. It is our desire to help you.

ASK ANY QUESTIONS you please about plants, flowers, fruits, vegetables or other practical gardening matters. We will take pleasure in answering them.

SEND US NOTES of your experience in gardening in any line; tell us of your successes that others may be enlightened and encouraged, and of your failures, perhaps we can help you.

SEND US PHOTOGRAPHS OR SKETCHES of your flowers, gardens, greenhouses, fruits, vegetables, or horticultural appliances that we may have them engraved for GARDENING.

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GARDEN ALBUMS.—Several of our subscribers have a happy and interesting way of noting the progress of their garden year by year; they have the trees, shrubs, flower borders, vines about the house, and views and landscape effects photographed each year and these pictures arranged in an album. Not only is this album a delightful memory of the progress and development of the garden and home surroundings, but exceedingly useful in suggesting how, why, and where to make further rearrangements and plantings for the best effect. Photography is no longer one of the mysterious arts, nowadays it is one of the pleasant pastime accomplishments of most refined people.

DRY WEATHER IN PHILADELPHIA.—A nurseryman near there wrote us the other day: "Our nursery is in a terrible condition, scarcely any rain since July 4. Trees and shrubs are suffering on the hills, and digging is almost impracticable."

THE BEAN MILDEW.—In the garden of one of our subscribers in the neighborhood of Flushing, L. I., this serious fungous disease has made its appearance on the Lima beans, attacking the pods; it has also appeared on the Limas in the market gardens there.

SUBURBAN HOMES,—"I wish I could induce the thousands of young men in our country in easy pecuniary circumstances, to build up pleasant suburban homes. It would be the means of improving their morals and health," so writes the veteran, Mr. Benjamin G. Smith of Cambridge, Mass.

THE VARIEGATED FORM of *Helenium autumnale*, known as *striatum*, a vigorous growing hardy perennial, blooming in late summer, is just now getting a good deal of praise, and it deserves it. It belongs to the sunflower family, grows 5 to 6 feet high, and is very proliferous of small flowers, dull red striped with yellow.

BIG PRICES FOR ORCHIDS.—At the auction sale of a private collection of orchids in England last month a plant of *Cattleya speciosissima Sanderæ* brought $378; *C. aurea Hardyana*, $325; *C. Mossiæ Reineckiana*, $200; *Cypripedium* Winifred Hollington, $350; and *Dendrobium Leeanum*, $200. Many plants realized between $50 and $100 each.

TUBEROUS ROOTED BEGONIAS as a rule have been a complete failure as bedding plants in the vicinity of New York this year, no matter how good the plants were when planted out they seemed to take leaf and stem disease, from which they never recovered. Even Vernon wasn't as good as it used to be. *Torenia Fournieri* and portulacca were planted among them to replace them, and soon made a good effect.

FIFTY CENTS FOR THE TREE and a dollar for the hole to plant it in is good sound sense. Be very particular to prepare big wide holes well filled with good loamy soil to plant your trees in. Give them a good start in life, and a few years hence when you look upon the vigorous, healthy, happy trees so treated, and then at some that may have been set out in the little basins scooped out of the hard soil and only big enough to barely hold the roots at the time, you will quickly see the wisdom of properly preparing the holes at planting time.

ASTILBE LEMOINEI.—According to the *Gardeners' Chronicle* this is a new plant, a hybrid between *Astilbe Thunbergii* and *S. astilboides floribunda*. Its foliage rises to about 19 inches high, and its flowers are white with a rosy shade. It "is absolutely hardy, and as well adapted for forcing, as is *A. Japonica*, which it excels from every point of view." It will be remembered that *A. Japonica*, commonly called *Spiræa* (or *Hoteia*) *Japonica* is a common hardy summer blooming perennial and also much used as a pot plant for forcing in winter or early spring.

ALTHÆA OR ROSE OF SHARON, WHICH? In our note, page 2, September 15, we gave the preference to Althæa, but one of our readers suggests that Rose of Sharon is the proper name. So we open our bible and turn to The Song of Soloman II and I and read "I am the rose of Sharon, and the lily of the valleys." Then we ponder did that mean the althæa? No, according to Royle, Balfour, and other eminent bible scholars the rose of Sharon there referred to was *Narcissus Tazetta*, commonly called the polyanthus narcissus, and which abounds in the meadows of the level tract of country between Mount Carmel and Cæsarea, known as the rich plain of Sharon.

SULPHUR PREVENTS SCAB OF POTATOES.—The New Jersey College Experiment Station has found that in planting potatoes if the freshly cut seed be rolled in sulphur, and when planted in the rows if sulphur at the rate of 300 pounds per acre be dusted along in the drills, the scab of Irish potatoes and the soil rot of sweet potatoes are almost completely done away with. In a trial of rolling the seed in sulphur and also dusting sulphur in the drill, only one per cent. of potatoes were scabby at digging time; in one where the seed was rolled in sulphur but no further sulphur was used in the rows, only five per cent. were scabby; in another where no sulphur at all was used the potatoes were all with rare exceptions, scabby and unmarketable.

CACTUS DAHLIAS.—Last spring Mr. W. J. Buttfield of New Jersey sent some fine new varieties to Dosoris for trial. The roots were small when we planted them out, but we gave them good ground and turned the hose on them, and they have grown and blossomed a good deal better than our old sorts whose crowns we simply divided in May before setting them out. Last week a noted European horticulturist was here and advised us if we wanted fine flowers and lots of them to plant old, whole crowns in spring and not to divide them. Now while that advice may be all right in his case it is erroneous in ours, in fact, we would far rather have sturdy young plants raised from cuttings in spring to set out in summer, than old roots or even closely divided old crowns.

TRANSPLANTING LARGE TREES.—We prefer doing this in spring, and would prepare for it now. If you want to move a moderately large tree, say 4, 5 or even 6 inches in diameter of trunk, next spring, head in its top now all you think ought to be done at planting time, then mark a ring on the ground around and 4, 5, 6 or more feet away from the stem, the distance away depending on the size of the tree. Now along but outside of this ring mark dig a narrow trench say 3 feet deep, the object being to cut away all roots projecting beyond it, and fill up the trench at once with the same soil that came out of it. By spring the tree will have fairly recovered from the shock caused by cutting in root and top, and may be dug up and transplanted with fair chances of success.

A MANURE PILE A-FIRE.—*The Journal of Horticulture* tells us about a big pile of ordinary horse stable manure 21 feet long, 12 feet wide, and 12 feet high in a London market garden that caught a-fire by spontaneous combustion, burning with an intense heat. It took the fire department to drown it out. This manure was what was hauled home from the London stables by the returning market wagons, and was not first soaked with water as our manure agents in New York deliver it out into the country by railroad or sail boat, hence it was more apt to dry out and burn. But what astonishes us is the fact, that any sane gardener would pile up in height such a

heap of manure as that, if it didn't burn up with fire, it would burn up of its own h at, and rende the manure of very little fertilizing worth.

SPINELESS GOOSEBERRY BUSHES.—We have read a good deal about them since a year. The *Gardeners' Magazine* tells us that the first one was raised among a batch of seedling gooseberry bushes by M. Billard, of France, in 1860. It attracted no particular notice till M. Lefort took hold of it in 1884 and raised several good varieties from it. These have now passed into the hands of MM. Letellier et Fils, Caen, France. "Four varieties have been selected for distribution, and these are Souvenir de Billard, a vigorous growing variety with spreading branches productive, and bearing large red fruits, Edouard Lefort, remarkable for its productiveness and the high quality of its vinous red fruit; Madame Edouard Lefort, dwarf in growth and bearing medium-sized red fruits, which remain in condition upon the tree for some time after attaining maturity, and Belle de Meaux, vigorous in growth and productive, the fruits bright red."

"GOOSEBERRIES, whether English or vai ieties of native growth, do not succeed well in the United States of America, owing to the prevalence of drouth and the ravages of mildew. Try again, American cousins; plant in cool, fairly moist situations." So we read in a trans-Atlantic contemporary. If our foreign friends should visit the exhibitions of the Mass. Hort. Society at gooseberry time they'd see that even Jonathan knows something about growing their big gooseberries; at the same time we candidly allow that this is no gooseberry country, the game isn't worth the candle. We can grow very fair natives, but then there is a big difference between them and what we used to pick in Lancashire. Your advice is lost upon us, we have tried that too many years, without success, to have a ray of hope left. Still, now and again some painstaking amateur surprises us with the fine gooseberries that he raises; but we in our hurry can't stop to do it.

THE USE OF PLANTS in and around factory buildings has already been commented on in GARDENING. A gratifying example of this is the Scotten tobacco factory at Detroit. A strip of well-kept turf separates the building from the street, and this is embellished by palms, small bay trees and beds of flowering plants, while the entrance arches dis lay hanging baskets. The Japanese ampelopsis is to be trained to cover the walls. Mr. Orrin Scotten, an enthusiastic amateur, possessing one of the most beautiful places in Detroit, is anxious to encourage a love of flowers among his employees, and the factory planting will certainly further this. Another Detroit idea was the use of fine specimen palms and other decorative plants in the power house of a street railway. The Michigan Central Railway is greatly to be commended for the beautifully kept gardens at all the stations throughout the state. At Ypsilanti, where the display is equal to that made at many ambitious parks, every woman passenger on the through trains is presented with a little nosegay from a heaping basket provided for the purpose.

VERY FINE ASTERS.—C. W. R., Whitehall, Mich., writes: "I have had White Branching China asters this season whose flowers measure 4½ inches across and perfectly double."

Miscellaneous.

HOW I GROW CANNAS.

[The rest of a paper read by J. T. Temple, Davenport, Iowa, before the Society of American Florists, and revised for GARDENING *by the author.]*

In April we divide and start our cannas in a mild hotbed in six or eight inches of soil, retaining one and not more than two eyes to each piece; these make larger growth and finer foliage th: n if more eyes were left. When they have grown a foot high, about the third week in May, we plant them out in open ground if the weather is suitable, if not we pot them singly until we are ready to set them out. In windy situations it is best to plant them out as soon as their first leaf shows itself above the ground, when they do not break off so easily and are hardier and stronger than plants having a lengthier growth.

To be effective the beds should not be too large. Mr. William Robinson of London, in *Sub-tropical Gardening*, truly says that "enormous meaningless masses of them are things to avoid, and not to imitate." A circular bed about 15 feet wide is a good size to plant the tallest varieties in. It should be made level and filled with good soil enriched with one-fourth its bulk of good well-rotted manure. Indeed if the bed is little below the surrounding surface, so that the water will not run off it would be better than if raised above the level. If the bed is larger than 15 to 18 feet in diameter for the tallest variety it will look low and squatty, and if smaller it will look too high. After they are planted we give them a good watering, then when they have started to grow rapidly, say about July 1, we place the hose on the ground in the centre of the canna bed, and let the water run slowly all night. During the warm and growing season they cannot have too much water at the roots. Don't water the foliage in the beds more than once a week when the plants are in bloom, as it spoils the flowers. Keep cutting the old flowers off before they set seed, and the bloom will be continuous until frost.

A well grown canna is a helpful addition to any kind of architecture, and is suitable for planting at base or side of steps or porch. Cannas are also very effective planted in clumps or singly along walks or lawns, and are useful for screening unsightly views. A very handsome bed may be made of one color, say Chas. Henderson, Alphonse Bouvier, with a border of one of the dwarf yellow varieties. In a neighbor's terrace lawn the owner has planted clumps of these cannas (assorted) at the foot of three terraces, and the plants five to six feet apart; the effect is very pleasing, especially with the grassy background. At the World's Fair last year, between Horticultural Hall and the greenhouses were two novel round beds, raised eight to twelve feet high, the mounds being made, so I was informed, of old boxes, manure and refuse sphagnum moss and soil from cleaning out the greenhouses and sheds. They were planted chiefly with Mme. Crozy cannas, yuccas, castor oil plants and smaller things to fill the bare spots; being so high and abundantly watered they were very effective.

SEEDLINGS.—Cannas are easily grown from seed and the seedlings bloom the first year. Soak the seed in warm water for twenty-four hours before planting it and most of it will germinate. Good varieties are raised in this way, and raising seedlings should be encouraged, but my advice is throw all new varieties on the rubbish heap unless they are decided and distinct improvements on such varieties as Chas. Henderson, Alphonse Bouvier, Florence Vaughan, Capt. P. de Suzzoni, Mme. Crozy, Paul Marquant, and other good varieties now in use.

INSECTS.—The canna is remarkably free from insect pests. Red spider and a small white hairy worm which rolled up the leaves and cut holes in them, disfiguring them badly, are the only insects I have found on them; the remedy for the red spider is the hose and lots of it, for the worm hand picking.

TAKING UP.—The first day after frost I cut off most of the tops, leaving a few leaves on, then take up the roots and plant them, without dividing, in boxes in sandy soil, and place these in a light cellar or under a bench in the greenhouse, care being taken to see that they are given only enough water to prevent them from drying up, and not enough to cause rot. If I have plenty of room we plant them on a greenhouse bench and keep them growing all winter, and at Christmas and Easter we cut flowers enough from them to pay for their keeping.

QUALIFICATIONS.—A good canna should possess good foliage, a sturdy habit, a large bright flower, composed of wide and not too long petals, of good waxy substance; the flower stalk should raise well above the foliage, and a good bright color. The flowers on the stalks should not crowd one another too much and they need not necessarily be upright, as is the standard set by some, but may droop, as in the *Iridifolia* or *Ehemanni* type; to some they are more graceful and beautiful than the upright type. For years I have been testing all the new varieties as they were introduced. Some were extra fine, but many should not have been sent out; some had new shades and markings but lacked substance and breadth of petals, etc. Some years a variety would do especially well, and the next year a variety that was poor the previous season would take first place. Some plants of a variety do better in some locations than in others, planted at same time and given same treatment.

The best twelve grown this year by me of the previous introductions are:

Chas. Henderson, of its color (rich vivid crimson) the best canna to date; petals wide, not too much reflexed and of fair substance; very desirable planted singly and good for beds of all one color.

Florence Vaughan, the gem of all cannas, color bright golden yellow, thickly spotted with bright crimson; petals broad, not too long, and of good substance; flowers lasting well this dry season. A fine companion plant to Chas. Henderson. It is not quite as showy as Capt. P. de Suzzoni for a bed of yellow.

Alphonse Bouvier, the brightest canna we have for bedding (richest crimson). Grand for massing in beds.

Capt. P. de Suzzoni is the best yellow for planting in solid bed of one color; it is a canary yellow shade spotted lightly with red.

Mme. Crozy keeps up the reputation of being the most free flowering of the Crozy type of cannas. It often comes true from seed.

Paul Marquant is another grand canna, color of flowers, salmon scarlet.

Geoffroy St. Hilaire is, this season, the best dark or purple leaved variety. It is fine for massing in beds; flowers orange red.

J. C. Vaughan is another equally good purple leaf canna with larger and darker flowers than the preceding.

J. D. Cabos, a gem, and President Carnot are both good varieties that cannot be

dispensed with, though J. D. Cabos fades out considerably this dry season.

Count Horace de Choiseul is giving me good satisfaction this year, but did poorly with me the two last seasons.

Mlle. de Cruillion should be planted for its odd tint of yellow, shading to terra cotta; it is a free bloomer.

Every one should have some plants of C. Ehemanni, whose grand foliage and beautiful drooping carmine flowers, on strong stalks, render it entirely different from other varieties. It is a gem when well grown. There are other good varieties as Paul Bruant, Trocadero, H. Vilmorin, Egandale, etc., that did well with me last year, but the above named are the best this year. Of the newer or later introductions that I am testing or have seen, first stands Koenigen Charlotte, with very brilliant scarlet flowers with a broad band of golden yellow; the flowers are of good size and substance, but the petals are not very broad.

Paul Sigrist, in color, is an improvement on Mme. Crozy, but the flowers lack substance and do not last well.

Lemoine's Eldorado is a grand blooming canna, color bright yellow; good sized petals and good substance.

Columbia, an Iowa raised seedling raised by Kramer & Son, as seen at the Chicago Exposition, also in 1892 at Marion, is a magnificent variety; color bright red; flowers large, upright and supporting one another well on the stalk. Orange Perfection, dwarf, orange scarlet, is another variety that I am testing th's year, but I do not think much of it. Florence Vaughan is said to be the same as Antonin Barton, a French novelty of '93, and so it is, with this pointed difference that it was purchased and named by the introducer of it in the fall of 1891, a couple of years before Antonin Barton saw light in America.

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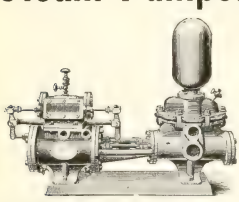

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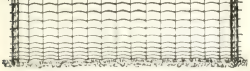

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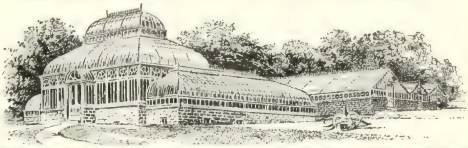

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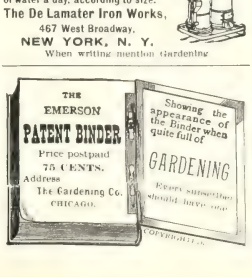

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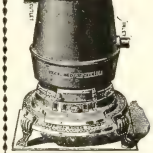

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GARDENING

Vol. IV. $2.00 A Year 24 Numbers. CHICAGO, NOVEMBER 1, 1895. Single Copy 10 Cents. No. 76.

RESIDENCE OF MR. F. P. LIVINGSTON, PITTSBURG, PA.

Landscape Gardening.

HOW I PLANTED MY PLACE.

To one who has broad acres to lay out and plant it must indeed be a delightful task, knowing that each tree and plant will have ample room to grow and fully develop. The favorite flowers may grow in sun or shade, each plant at home in its native element, and in quantities to delight a lover of the beautiful. No tree nor shrub need crowd that velvet stretch of lawn, so necessary to feast the eye with pleasing contrast.

To those who desire to grow many varieties of flowers, and who have but a small portion of terra firma—say fifty by one hundred and twenty feet—it becomes a puzzling question how to proceed without having the ground look like a polka-dot pattern, and indeed, when the area of a good sized house and porch is taken out, there seems but little room left for lawn or flowers.

For example, we have a corner lot fifty by one hundred and twenty feet, as shown in the diagram. Mostly all suburban property has comparatively good soil, having been used for truck gardens and then serving as pasture fields. We commence operations for building in the spring by plowing over the entire surface of the lot, and with a two-horse team scooping the soil, including sod, to the street and alley. Excavate cellar for house and spread the earth thus obtained evenly over the lot. In the late fall (when the house is completed) fill in lot with the soil previously removed and add enough soil—obtained from the surface of some old pasture field—to raise the lot two feet above the sidewalk and alley, sloping it away from the house.

Spade in a thick coating of well rotted cow manure (it should not heat when piled up), leaving the ground rough but close to finished grade. Commence the following spring as soon as the ground can be worked by carefully spading over the entire lot, breaking up all lumps and rotted sod. Now prepare some fine soil of same material as the lot filling, and level the lot to proper grade. Roll it down and sow thickly with the finest selected grass seed, but use no clover. Now with a sharp tooth rake scratch over the surface and roll again. Sod the curved terrace portion where it joins the sidewalk, a strip about eighteen inches wide will be sufficient to prevent washing ou . Keep the ground from caking by frequent spraying with a rose nozzle. When the grass is high enough to use lawn mower cut it once a week during the summer.

Plantains, dandelions and crab grass must be pulled up by hand; or if allowed to get too large take a thin bladed knife with a chisel point and cut under the sod,

removing the crown. All other weeds will die out by frequent cutting. After the first year we use a commercial fertilizer, applying lightly two or three times during the spring. We prefer it on account of the absence of weed seeds and the convenience of handling. Who will forget the appearance or odor of a lawn that has received a coating of fresh manure?

The begonia, pansy and wild flower beds are placed at the north side of the house, where they are in shade until about three o'clock in the afternoon. These beds are filled in to a depth of twelve inches with leaf mould and wood earth carted from the forest. A small portion of thoroughly decomposed cow manure is added.

Now a hedge is a very desirable thing to enclose a lot, but where the lots are only fifty feet or less in width, a dividing line of any kind (in front), detracts from the appearance, and the twenty-four inch terrace obviates the necessity of a fence in front. As the rear portion of the lot is not to be a lawn, but devoted entirely to flowers, it will look neater if enclosed. If we use a hedge here the roots will encroach too far into the garden, robbing the plants of food and above ground casting a shadow and preventing a free circulation of air, and, as we wish to use all the available space for flowers, this would never do, so we make a light fence of three lines of one and one-quarter inch gas pipe, passing through light posts of locust or cedar.

The main walks to the front and rear of the house, including sidewalks, are stone. All paths among the plants and flowers are sodded and the grass kept closely cut and neatly edged. Beds are level with the paths, except the iris bed, which is sunken.

We make out our list of plants according to plans, so as to get the orders to the nurserymen in January, thereby receiving plants among the first shipments in spring. With but few exceptions we purchase named varieties, and buy from firms making a specialty of the plants we want. We rarely plant out tender stuff until Decoration Day, as it will progress more rapidly in the conservatory or sunny window and will be in no danger of being stunted by frost.

Such bulbs as cannas, tuberoses, gladioli, caladiums and tuberous rooted begonias we start in March, using flats 12x24 inches by 3 deep, filled with sandy earth. To get large plants from seed of begonia Vernon and tuberous rooted begonias we sow in pans not later than December, transplant often, harden off well, and set out after June first. We always grow some cannas from Madame Crozy seed, a great many will come true, and if one foot high when set out will bloom from July until frost. To get best results from seedlings set them two feet apart, and cut off the old flowering shoots to encourage new growth. Canna seeds should be soaked two or three days in warm water. Remove and plant those that burst open the germ end; then take the balance and cut off the hull on germ end, which can be recognized by a small spot on one end. Then plant in a layer of one inch of sand with two inches of good soil underneath.

EXPLANATION OF PLAN.

1. *Magnolia Watsonii.*
2. *Magnolia stellata.*
3. *Magnolia Lennei.*
4. *Funkia Sieboldii.*
5. *Eulalia gracillima.*
6. *Wistaria Sinensis*, purple. Trained over porch entrance.
7. Baltimore Belle rose.
8. *Clematis paniculata.*
9. Clematis Mme. Edward Andre.
10. *Clematis Jackmannii.*
11. *Clematis Henryi.*
12. *Arundo Donax variegata.*
13. Gladioli, white or pink, and Pearl tuberose alternately.
14. Canna Mme. Crozy. }
15. Canna Florence Vaughan }
16. Canna Alphonse Bouvier }
Tulips in early spring.
17. *Clematis Jackmanni.*
18. Clematis Mme. Baronne Viellard.
19. *Ampelopsis Roylei.*
20. Queen of the Prairies rose.
21. *Eulalia Japonica variegata.*
22. *Funkia grandiflora.*
23. *Betula alba pendula laciniata.*
24. *Prunus pendula.*
25. Lily of the valley.
26. Begonia Vernon. Hyacinths in early spring.
27. *Ampelopsis Veitchii.*
28. Hardy ferns and native wild flowers.
29. Tuberous rooted begonias. Hyacinths in early spring.
30. *Eulalia zebrina.*
31. Pansies.
32. *Aristolochia Sipho.*
33. *Phlox decussata.*
34. Geraniums, balsams, heliotrope, etc. Border of coleus, not clipped.
35. *Yucca filamentosa.*
36. Geraniums, tuberoses, gladioli and tritomas.
37. Herbaceous pæonies. While plants are small plant seedling canna between pæonies. Border of coleus.
38. *Iris Sibirica.*
39. *Iris Germanica.*
40. *Iris Kœmpferi.*
41. Water lily pond.
42. Geraniums.
43. H P. roses.
44. Lilac Souv. de L. Spath.
45. Lilac Leon Simon.
46. Lilac Marie le Graye.
47. Lilac President Grevy.
48. *Prunus Pissardii.*
49. *Sophora Japonica pendula.*
50. *Pyrus Malus Parkmannii.*
51. *Cornus florida rubra.*
52. *Cornus florida pendula.*
53. *Lilium longiflorum.*
54. *Lilium elegans atrosanguineum.*
55. *Lilium speciosum album.*
56. *Lilium speciosum rubrum.*
57. *Lilium tenuifolium.*
58. *Lilium elegans citrinum.*
59. *Lilium candidum.*
60. *Lilium auratum.*
61. *Phlox Drummondii.*
62. Tall nasturtiums.
63. Columbines.
64. Evening primrose.
65. *Amarantus caudatus.*
66. Sweet peas.
67. Irish yew.
68. Bay.
69. Hydrangea, Thos. Hogg.
70. Hydrangea, Otaksa.
71. *Agave Americana.*
72. Dwarf Japan weeping maple.
73. Dwarf Japan weeping maple.
74. Tea roses, carpeted with English and Spanish iris.
75. Shirley poppies.
76. White *Phlox Drummondii.*
77. Oriental poppies.
78. White petunias, with *Salvia splendens.*
79. White and pink poppies with white balsams
80. King of Tom Thumb nasturtiums.
81. Candytuft with blue Victoria bachelor's button.
82. Dwarf ageratum and white balsams.
83. Conservatory.
84. *Amarantus caudatus.*
85. White hollyhocks.
86. Double sunflower.
87. Morning glory.
88. *Ipomœa paniculata.*
89, Concord grape vine.
90. *Narcissus poeticus.*
91. *Narcissus Horsfieldii.*
92. Narcissus Emperor.
93. Narcissus Empress.
94. Narcissus Sir Watkin.
95. Narcissus Henry Irving.
96. Heliotrope.
97. White balsam.
98. Rudbeckia.
99. White asters.
100. Tritomas.
101. Pink asters.
102. Blue and white asters.
103. Hollyhocks.
104. Sunflowers.
105. Hollyhocks.
106. Castor bean.
107. Tree lilac.
108. Fern leaf beech.
109. Golden oak.
110. Purple beech.
111. Pin oak.
112. American elm.
113. American beech.

Pittsburg, Pa. F. P. LIVINGSTON.

Trees and Shrubs.

DESIRABLE HARDY SHRUBS FOR EFFECT IN FALL.

As a rule the autumn coloring of our trees has not been extra good this season owing no doubt to the seven weeks' severe drouth we have had this fall. Among autumn-tinted trees and shrubs however stands the

JAPANESE WINGED EUONYMUS (*E. alatus*). There is a specimen eight feet high and as much through in a border here, and it is wonderfully beautiful, light pink and dark pink mixed everywhere through and over the whole plant. Its orange-scarlet fruit although small also adds to its beauty now, and it would have been better were it not for the injury done the blossoms by frost, May 17 last.

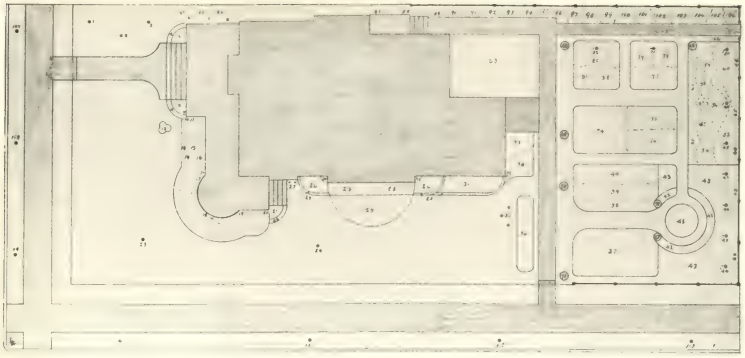
WINTER BERRY BUSHES (*Prinos verticillata*) and *P. lævigata* are very beautiful in fruit.

AMELANCHIER JAPONICA, as a shrub both for fine foliage and an abundance of showy crimson-scarlet fruit is first-class.

CORNUS KOUSA known also as *Benthamia Japonica* colors up well in fall, and retains its leaves into November, it also is highly desirable on account of its white wax-like flower bracts in June, and its strawberry-like fruit in September.

THE ACONITE-LEAVED JAPAN MAPLE (*Acer Japonicum* var. *aconitifolium*) is a wonderful shrub, other Japan maples are well known and need no further remarks, but the coloring every fall of this scarce tree is really superb, let alone its deeply divided foliage. Besides, the tree is hardy and a good grower.

THE SEA ELDER (*Baccharis halimifolia*). There are two forms, the male which is worthless as an ornamental tree, and the female which is exceedingly showy at this time of year when its white pappus gives the shrub the appearance of a shower of snow on a bush. Some plants display their pappus early, others late, in all covering the season from September till hard frost sets in. And it is hardy and easy to grow. We never propagate any except the female form.



MR. LIVINGSTON'S GARDEN.

THE CHINESE MATRIMONY VINE (*Lycium Chinense*) also is grand. From the end of September till hard frost sets in every shoot and branchlet is bending under its load of conspicuous oval orange-scarlet berries. By tying up the main stems to a tall pole and allowing the side branches to hang down to the sides an uncommon pyramid of green and scarlet may be obtained. J. R. TRUMPY.

Kissena, Flushing, N. Y., Oct. 21, 1895.

APHIDES ON THE ROOTS OF YOUNG TREES.

Last fall I procured some fruit trees from a northwestern nursery, and during this summer, although they had the best of care (wrapping the trunks, proper watering, etc.), and notwithstanding when planted they had good roots, they died. This fall the concern I purchased from sent me new stock to take the place of the dead trees. When planting them we found the roots densely covered with (white) aphides—millions of them—the soil that clung to the roots being full of the insect and every angle in the roots being a nest for hundreds. Some of the stock had been planted before the aphides were seen at the root, but since then we resurrected the others and found the aphides on all. This is a caution to buyers of nursery stock to carefully examine the roots and if aphides are present to be sure to exterminate every one, or death to the plant will surely result. When my trees died they went off as with the "fire blight" of the books, but I am now convinced the aphides did the work. AMATEUR.

Chicago, October 14, 1895.

DEUTZIAS AND ALTHAEAS HARDY AT CHICAGO.

In my shrubbery beds the soil is rich. I planted my deutzias in the spring and next winter they were all killed back considerably, while plants in a neighbor's grounds remained all right. I saw that there must be some reason for this. I examined my neighbor's plants carefully and found them in poor soil and in small individual holes. The annual growth of his plants was hardly one-fourth that of mine. My plants, being in a bed and well cared for, made a stronger and later growth, and did not thoroughly ripen it by the time winter set in. Since then I protect them and will until they somewhat exhaust the—to them—over-rich soil.

The same can be said of the althæa (*Hibiscus Syriacus*). In my neighbor's grounds it makes an annual growth of some eight inches and last winter it killed back about five inches. He does not cut them back in spring as is the rule. But my plants make twenty or more inches of growth and as this shrub blooms all along the new growth I get three times as many flowers as he does. This strong growth, however, will not ripen, so I protected it, for I would rather do the cutting back myself than have Jack Frost do it for me, I am severe enough but he might be worse. These two shrubs can be grown here, and when established, called hardy, but some winters will pinch them. W. C. EGAN.

XANTHOCERAS SORBIFOLIA, HOW TO RAISE IT FROM SEED.—We have several inquiries about this. Take an ordinary seed flat, that is a shallow box, and fill it to within an inch of the top of light soil, then sow the seed, pressing it into the soil, now fill up with soil level to the surface of the flat. Set the box in a cold frame, north or east facing is best, and spread a layer of swamp moss or an armful of leaves over it to lighten the frost and prevent the freezing and thawing throwing the seeds out of the ground. Cover the frame with a sash over winter, and a mat over it. Towards spring keep a lookout for the sprouting seedlings, and the moment they appear, give them a little more light and treat them like other germinating seedling shrubs.

DISEASED MAPLES.—E. E. T., Brighton, Maryland. It is probably too late to do anything to the trees this season, but if you will kindly mail us a few good specimens of the diseased leaves, in a stiff box—say tin or light wooden—we shall try to advise you about it.

TRANSPLANTING THE WEEPING PURPLE BEECH.—H. E. B., Orange, N. J., apropos of our note page 23, October 1, tells us that three years ago he imported some plants of it from Europe, and that they now are "six feet high with full bushy pendent heads, and beautiful beyond all upright trees."

THE MISSOURI SILVER THORN—What is it? asks a reader. It is *Elæagnus hortensis*.

The Flower Garden.

FLOWER GARDEN NOTES.

HIBISCUS "SUNSET." (Catalogued last spring as a desirable novelty). Seeds sown in the greenhouse in the early part of March made stocky little plants to set out in May. Four were planted in what I consider poor dry soil, but freely watered, and where they got the full rays of the sun from morning until evening; one in heavy and three in sandy soil, getting about three or four hours sunlight a day. Those planted in full sunlight have grown about 7 feet high, with heavy thick stalks, while the others are only about 5 feet high and have smaller stalks. The catalogues say that the plants will bloom when quite small, but the first flowers on mine did not open until September 17, and were on the plants grown in full sunlight. The others have not flowered yet. The color is described as cream, but I should call it a clear, light canary, with a deep maroon center. The first flowers were 7 inches across when fully expanded, and attracted considerable attention on account of their beautiful colors, and as a curiosity, but as they have short stems (which are prickly), and last only from morning until late afternoon, they seem rather worthless for cut flowers. The plant branches freely, all the branches growing upwards, and the leaves are very large and deeply cleft, but rough and coarse. The buds come all along the end of the main stalk and branches, and from the axils of the leaves, and each plant will probably have produced 60 or 70 flowers, unless cut down before that time by frost. The chief defect

of the plant is that many of the leaves turn yellow, thus giving it a very untidy appearance. It is not troubled by insects, except now and then a hairy caterpillar.

BEGONIA EVANSIANA. (Said to be hardy herbaceous perennial, if given sufficient protection in winter). I can discover absolutely no fault in connection with this beautiful, easily grown and most satisfactory plant. It is a true begonia, both in leaf and clusters of light pink flowers. As long as I have a garden I intend never to be without a number of them. I wonder it is not seen in every garden, as it requires no care whatever, except to be kept moist at the roots. Rooted cuttings set out last May have made large branching plants about 18 inches high, which are full of flowers. The exposure is such that the plants get only a few hours sun a day, and the soil is moderately light. The habit of the plant is compact, and the leaves do not scald or rust.

CLEOME PUNGENS. If anybody likes this coarse, weedy looking plant, it ought to be grown in a north or northeast exposure, as much sunlight dwarfs the plant and shrivels the flowers. Even in hot weather the flowers shrivel up. When the flowers of the main stem first open, and if the cluster is large, the plant is fairly decorative. Against a background of Jackmanni and paniculata clematis, as I had it this year it is for a short time quite attractive. It is terribly infested with a light green worm like that to which climbing nasturtiums are so subject. One word of caution. Don't plant it near your veranda if you wish to enjoy your summer evenings out of doors, or expect your friends to call to see you, as it emits an odor so nearly resembling that of that little animal called *Mephitis Americana*, as to be distinctly disagreeable.

HUNNEMANNIA FUMARIEFOLIA. The leaves are light green and finely cleft, something in the style of eschscholtzia. The flowers are large and tulip-shaped, of a beautiful golden yellow with orange stamens. On the plant and when cut they last in perfect condition for days. I wonder it is so rarely seen in gardens. Seed ought to be started indoors early, as otherwise it will not bloom until late. My experience in transplanting would lead me to advise its being planted in small pots and turned out with a ball of earth. [A perfect beauty and an old one in cultivation in some gardens. In a general way, however, it is almost unknown. Its big name is against its popularity. Call it Hunnemann's Golden Poppy, and let our seedsmen give it a boost, and get plenty new seeds of it and sell them in liberal packets, and we believe many people will grow it and like it.—ED.]

NASTURTIUMS, climbing and dwarf. Any suggestions looking towards preventing these beautiful, albeit common, flowers from losing their leaves by turning yellow would be gratefully received. In dry or moist soil appears to be the same, and the complaint is seems to be universal. I do not mean that all the leaves turn yellow, but enough of them to spoil the appearance of the plants. L. C. L. J.

New York, September 27, 1895.

CLEMATIS MADAME BARONNE VIELLARD.

J. P. F., Independence, Mo., asks: "Is this clematis hardy in Western Missouri and if not how should it be protected?"

It probably is as hardy as the other large-flowered varieties and in a warm sheltered place will survive without any covering. At the same time we advise you to unfasten it from the trellis or other support, lay it flat on the ground and cover it with sods, earth or sand, over this a little litter or leaves may be placed if the spot is cold or exposed. Burying in this way is a safeguard against rot in winter and the serious changes of temperature you are apt to have in early spring. Hay, straw or similar litter would also do all right for a winter covering were it not for the mice they harbor. Mulching it well over the roots and wrapping up the top in matting, sacking, or straw is good and about all we can do with it when it is intertwined on a trellis or among other vines.

POLYANTHUS NARCISSUS.

F. N. B., Northern Indiana, writes: "I had a beautiful bed of polyanthus narcissus last spring, by dint of covering with leaves in a frame, but I never thought to take up the bulbs after the leaves had died down, and now the young leaves are two inches high. Will they be ruined?"

Not necessarily. Set a frame over them now, but don't put the sashes on except as a protection from hard frost. Over the ground among the bulbs spread a good layer of rotted leaves that had lain in a pile since last year, or loose leaf soil from hollow places in the woods, or finely rotted, light chaffy manure, this is to mulch the ground well without covering over the young leaves so much as to bleach them as they advance in growth. Bank well with leaves, fresh or littery manure, or the like around the frame to keep out the frost, and in severe weather keep the sashes on the frame and cover them over with straw, hay, mats or shutters, to help exclude some of the frost and prevent hasty changes of freezing and thawing. You will probably save them all right. The error into which you fell is a common one, and one we have spoken of several times. All tender narcissi should be lifted when their leaves die down in early summer, and kept out of the ground dark, dry, and cool as practicable till the following fall, when they may be planted out again as before. This ripens the bulbs, renders them less liable to rot in summer, and discourages growth in fall, thereby rendering them hardier than they would be had they started to grow before winter set in. Polyanthus narcissi are not hardy as a rule, in the northern states. The paper white narcissus so much grown by florists, and the "Chinese sacred lily" now so popular are common forms of this narcissus.

BEDDING PLANTS IN LINCOLN PARK, CHICAGO.

White and rose colored ten weeks stock were used together in beds bordered with *Centaurea candidissima* in the flower garden. By pinching out the old flower heads the stocks were kept in good form until midsummer when they were replaced by vincas or celosias. Pansies were freely used and did well, until late in the summer. Mr. Stromback, the gardener, starts them late, invariably sowing the seed during Christmas week instead of in the fall. By this plan his plants come into flower only a little later than fall sown pansies, and remain in flower until China asters are far enough advanced to acceptably replace them.

Geraniums of course hold a prominent place, semi-double varieties being mostly used because they hold their flowers longer than single ones. Those in favor are: Mme. Bruant, red, a strong grower and good bloomer. Emile de Girardin, pink, with similar qualities; La Favorite, white, and very satisfactory; Guillan Mongelle, a good scarlet; Dr. Jacoby, salmon; and President Leon Simon, an old but excellent dark red. The single varieties in use are: Mrs. G. M. Garr, an excellent white; Rev. Watkins, scarlet; and Gloire de Cabonay and Mrs. E. G. Hill, both salmon. Gettysburg, crimson, and Madonna, scarlet, are two new single ones that are being tested and seem to promise well. Rose geranium is the only sweet scented variety used, and in fancy leaved sorts the choice is limited to Mountain of Snow and Earl Roslyn, both, as grown here, being compact, dwarf growing plants.

Years ago, when I first saw the Lincoln Park flower garden, I noticed a celosia, or old fashioned cockscomb, of unusually dwarf form, fine combs and rich color. Every time I have been there since the same flower has attracted my attention. Strangers always remark it and old ladies make no effort to resist the temptation to pillage the plants of seeds. I have never seen any like it elsewhere. It is called President Thiers. Mr. Stromback got the seed years ago and has kept it pure, the dwarf form of the variety making it particularly desirable as a bedder. [President Thiers cockscomb has been catalogued by some seed firms for years. Their description of it is, "*Celosia cristata nana* var. President Thiers—a very fine dwarf crimson variety, with dark foliage."—ED.] The beds of glowing crimson cockscombs are always bordered with *Centaurea gymnocarpa*.

Beds of pink verbenas are an even sheet of flowers. Red and white flowered vinca are used together in beds. They are liked because if the seed is started in January or earlier in a temperature of 70°, transferred to pots when large enough and shifted when necessary, they are in flower when planted out June 1, and remain in good form until frost. Their bright flowers and glossy foliage make an attractive bed.

There are beds of large, very richly colored single petunias that receive and deserve much attention. The seed is saved each year. A finely colored, large flowered strain of single China pinks, var. *Heddewigii*, is propagated in the same way. The seed is started inside or in a frame about April 1, and the seedlings transferred to pots. In fact all of the bedding plants used in the park are grown in pots before being planted out, to the end of securing well rooted plants that can be transplanted without checking their growth, thus insuring immediate good results in the beds. Globe amaranth or old fashioned crimson bachelor's button, a variety of everlasting, is used as a bedder.

Begonia semperflorens, pink, and its variety Vernon, red, are the only ones in use out of doors.

The yellow daisy, Queen of Belgium, is proving a capital bedder. It is very pretty and lasts well when cut.

Torenia Fournieri and *Browallia elata*, two unassuming little annuals, make modest beds among those of brighter hues. Cope's Pet ageratum, and heliotrope are both used as bedders. So also is *Agrostemma coeli-rosa* and snapdragons and asters in variety, the last being mostly of the Victoria type.

Four cannas, i.e., Mme. Crozy, Florence Vaughan, Egandale and Alphonse Bouvier are seen in beds on the terraces and bordered with scarlet and crimson zinnias, and others with a very pretty ornamental grass, *Pennisetum longistylum*, that grows about fifteen to eighteen inches

LILIUM AURATUM AT EGANDALE

high. It is not hardy but is easily wintered under greenhouse benches. The clumps are divided up in February and make nice pot plants in time for planting out, and it soon shows feathery heads that continue in good form until frost. [Why all that bother? We never take in an old plant, merely save a lot of seed and sow it indoors in early spring. These seedlings begin blooming quite early and are of good health.—ED.]

Other hardy ornamental grasses used are the eulalias and *Erianthus Ravennæ*. The coleuses in favor here are Wonderful, Jay Gould, Tasseellata, Firebrand, Verschaffelti, and Golden Bedder. The last, however, is used sparingly because it drops its leaves if the nights are cold.

Other foliage and edging plants in use are: Santolina, othonna, *Iresine Lindeni*, *Acalypha tricolor*, Golden feverfew, plain and variegated thyme, *Cineraria maritima*, *Centaurea gymnocarpa*, *Sempervivum calcareum* and echeverias and alternantheras in variety. *Alternanthera latifolia* being a strong grower is used for edging, and so is *A. aurea* which makes a somewhat taller growth than *aurea nana*; *versicolor* is used both for edging and in carpet beds.

Chicago. F. C. SEAVEY.

LILIUM AURATUM.

GOLDEN RAYED LILY OF JAPAN.

When the photograph here illustrated was taken there were thirty-five open blooms, averaging, by actual measurement, fully six to seven inches in diameter, and three unopened buds that developed later on. The stem was not over four feet high, being much shorter than some bearing twelve to thirteen blooms. In a bed of twenty-four bulbs five stems were fasciated, and in each instance were not as tall as those that retained the normal round stem. All these except the one illustrated produced numerous small and in many cases imperfect flowers. While this specimen of bloom is the finest one I have ever grown it is in no way very remarkable. In GARDENING of February 15, 1894, is illustrated a truss having eighty blooms on a flat stalk seven feet high, and some mentioned as having been exhibited at various places, having respectively one hundred, one hundred and twenty, one hundred and twenty-five and one hundred and forty blooms, but in no instance is the size of the flower given. In my bed were several having ten to thirteen good sized flowers, nearly all blooming at once, making a handsome sight. A photograph was taken, but the plate proved defective. The one illustrated was the earliest in the bed to bloom.

L. auratum has been in cultivation a little over thirty years, and has probably caused as much pleasure as and more sorrow than any flower in our gardens. It reminds me of the little girl that "when she was good she was very, very good, and when she was bad she was horrid."

I presume that my experience is that of hundreds, namely, that good bulbs planted in the fall and well protected during the winter can be depended upon the following summer for a fair show of bloom, but never after. Some of a lot may bloom the second year, and in some instances longer, but a bed devoted wholly to auratums will have many vacant spots after the first season of bloom. The bulbs are so cheap and a bed in full bloom presents such an attractive sight that it pays to renew the bed each season, or at least every second year. My treatment of the bulbs is as follows: The bed is two feet deep, well drained and contains good sandy loam, the top being slightly higher than the surrounding sod, and money wort (*Lysimachia Nummularia*) planted over it for a summer mulch. The bulbs are planted six inches deep on a two-inch layer of sand, and covered with the same material and then the bed filled, early in the winter a heavy coating of strawy manure is put on, extending two feet outside the bed all around. I started last fall with "monster bulbs" obtained from J. W. Elliott of Pittsburg. This fall, judging by the appearance of the stems, all are in fair condition and can be risked for another season, except six, which will be replaced this fall. Next spring, early, a few will be started in pots and transferred to vacant spots, to replace those that this fall looked all right but failed to materialize. This will give me a fair looking bed next year, which will be the second season The next fall all the bulbs will be taken up and replaced by fresh ones. The best of those taken up are planted in open spaces in the shrubbery, where if they materialize they are welcome, and if they fail they are not missed. W. C. EGAN.

Highland Park, Ill.

THE FLOWER GARDEN.

Clean up the beds and borders, and make everything look as neat and tidy as possible. A lot of frost killed plants and half dead, bedraggled old stems of perennials are not very nice surroundings about our doors, nor do they bespeak very much for our neatness and orderliness. Root up and clear away to the rot heap all frost killed coleus, heliotrope, vinca, salvia, ageratum, zinnia, balsam, alternanthera and other tender plants. Tear down moonflower, morning glory, nasturtium and other vines that have been nipped by frost, and get the trellises or strings that supported them cleaned of leaves, tendrils, strings, etc. Cut over cannas, and lift and store the roots as recommended in last issue. Cut over dahlias; remove the tops to the rot pile, and dig up the roots and bring them indoors to a warm dry place in cellar. Unless you are short of them there is no need of saving all of the roots; one-third or one-fourth of them should be enough, and in spring we can divide the old plants three or four fold. Cut over gladioli, and lift and store them where they will be safe from frost, but not kept over-warm. Tuberous begonias like about the same winter temperature, so do oxalis. But arums of most kinds, and especially amorphophallus and caladiums, like warmish quarters, that is, a night temperature of not less than 50°; and so do tuberoses and tigridias, both of which should now be up and inside.

In the fields and woods when asters, golden rods and other perennials die down in fall, the withered stems broken down and tora still adhere to or stick around the plants, arresting the wind blown leaves and snow, and thus forming a per-

fect winter covering to the plants. The same sort of thing in the case of peonies, irises, coreopsis, gaillardias and other border flowers would also hold good; for tidyness' sake though we cannot permit it; we can do just as well though. We can cut down all of those and other plants close to the ground and remove their tops, then spread a good layer of well broken up manure all over the border or bed, covering crowns and roots, letting it stay there till spring, when the rough part, if any there be, is forked off, and all the fine part dug into the ground. More than that this over-all mulching protects all manner of little self sown seedlings that may have sprung up in the borders, saving them for spring planting if we wish. And while the old straw of irises and other rank plants would afford a happy home for field mice in winter, the manure dressing gives them no shelter. In the case of evergreen pentstemons, statices, veronicas and others we are particular to scatter the manure only lightly on top of the plants and heavier around and between them; over mistflowers, Japan anemones, acanthus and such as have a reputati n for being somewhat precarious we mulch heavier than on the average.

We winter our Canterbury bells, forget-me-nots and daisies in a cold frame as much because they are easier to handle in that way than in the open garden than to better protect them from frost. Hollyhocks, foxgloves and sweet williams we mulch heavily about with clean tree leaves with a little dirt or loose manure thrown over them to keep them from blowing away. The leaves alone when there is no grassy stuff among them is not an attractive home for mice, still they will inhabit it if better is not at hand. We cut over the tritomas, say six inches above ground, and lift a lot of them and heel them in in a cold pit over winter; but the majority we let stay in the ground, mulching them heavily with leaves, strewing their own cut-over foliage over the tree leaves.

GRASSES.—We will now cut them over. *Arundo Donax* is cut over close to the ground and the stems saved to make windbreaks of in winter; then we cart in a layer of fresh stable litter six inches deep over the crowns and roots, leaving it there all the time. The eulalias are cut over about a foot or so above ground and a heavy mulching placed around them; the stubble in the middle is protection enough to the crown and admits air freely. Pampas grass in rigorous neighborhoods should be lifted and wintered in the cellar; if left outside protect it heavily. A piece of roofing paper laid over the crowns of somewhat tender grasses, and held in place by a few forkfuls of litter around it makes a good protection.

We winter a good many pansies on a raised bed out of doors, where they keep well till spring; a few evergreen branches are laid over them to shade them, protect them from being heaved by frost, and catch the snow.

Greenhouse and Window.

THE VARIEGATED RUBBER PLANT.

W. H. A., Boston, wants to know about it, also, "Is it a disease of the plant that causes the whiteness, or is it a natural color? Florists here who have it to sell say it is natural, those who don't keep it say it is a disease. I have been thinking of buying some, but I don't want them if the variegation is a disease. I know you will tell me the truth in the matter."

The white variegations in *Pandanus Veitchii*, Mountain of Snow geranium and Japanese hop vine are just as much of a disease as is the variegation in the leaves of *Ficus elastica*, at the same time while those three plants are of exceedingly easy cultivation the variegated rubber plant is not. True, W. K. Harris of Philadelphia and some other florists who make a specialty of this and similar plants succeed with it admirably, but not at all so the average florist. The leaves have an ugly way of turning brown, splitting and drying up, then dropping off and leaving the specimen bare and ugly. See what James Dean (one of our largest and best florists) says about it in GARDENING, February 15, '94, page 170.

OUR BIG GERANIUM.

Mrs. E. S. B., Harrisville, Pa., writes: "We have a big geranium in one of our hardware store windows. Three years ago in September we put it in an 8-inch pot in good garden soil and rich leaf mould and set it in the south window. The first year it reached to the top of the window and had a dozen or more large trusses on it at one time. The second year it filled the window with bloom, having 20 trusses of blooms on at a time. At present, entering the fourth year, it is not so thrifty. During all this time it has not been cut back or repotted. Mr. B. objected to it being pruned or disturbed in any way, so the man and plant have had their own sweet will and now the geranium is suffering."

Bless him, he did what he thought was right, and you, in letting him have his own way, did right also. But why didn't you take a slip from that geranium and grow it according to your own sweet will, and in that way teach him that while he might know a good deal about nails and saws his wife knew more than he did about growing window plants? Give the geranium a larger pot right away, for it must be starving to death; if it is in ill health, however, cut it pretty well back some time before you repot it, reduce the ball of roots a little at potting time, and use an undersized rather than large pot to begin with. After all, it may be easier to begin with a young plant.

THE GREENHOUSE.

Have all the plants nice and clean and prettily arranged, and keep the house clean and tidy. Ventilate freely in fine weather, but very carefully in boisterous, wet or cold weather. Avoid a close, muggy atmosphere, and an over-high temperature is detrimental to the plants. By economizing the sun heat in the day time we can do with much less fire heat at night.

While chrysanthemums are now very gay and beautiful we must not allow them to monopolize the greenhouse room or our attention so much that the other plants get overcrowded or overlooked. The moment their best flowers are cut off or past remove the plants. Tea roses, carnations, scarlet geraniums, several begonias, marguerites and orchids are in good bloom.

Bring into the greenhouse a few of the most advanced of the Roman hyacinths and paper white narcissus for flowers in early December, and then a few more once a week or fortnight for a succession. If the other hyacinths, tulips and narcissi are still out of doors cover them enough to keep frost away from them; but it is about this time we generally bring them indoors to a place in the cellar, covering them as before. This is for convenience' sake only. Pot or box up a lot of lily of the valley for winter forcing. Dutch bulbs should be well rooted before forced; not so with lily of the valley. It can be potted to-day and set into the forcing house to-morrow, but don't try to force it early unless you are handling cold storage roots.

Keep all young stock in actively moving condition, giving them heat, light and moisture; at the same time we must remember that palms, ferns and our colored-leaved tropical plants as a rule like a little shade.

TOBACCO DUST AS A MULCH FOR VIOLETS.

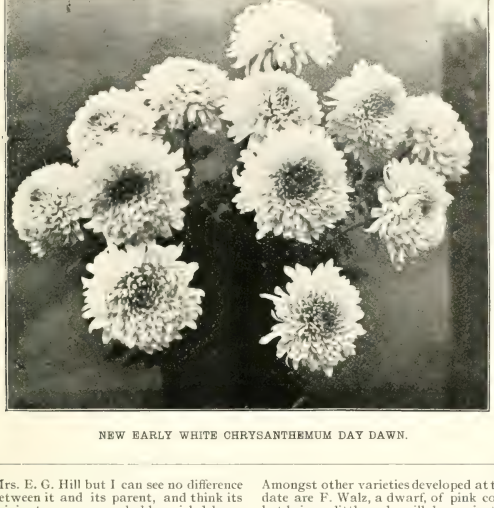
A subscriber from Hyde Park, Mass., asks: "What is your opinion on using tobacco dust as a mulch for violets—would it be apt to injure their fragrance?"

We would not use it except as an insecticide. If we wanted a tobacco mulch or even an insecticide for aphides among violets we would take fresh tobacco stems and chop them up with a hatchet to reduce them to a size easily worked in between and under the plant leaves, then moisten it and shut up the house or frame to warm it and better give off the pungent vapor to kill the insects. Use more fresh stems every third or fourth day for a week or two till every greenfly is dead, then do away with them altogether. Tobacco has manurial value, but it also has a vile smell, and although the fragrance of the violet may overpower that of the tobacco, you wouldn't like to offer a bunch of tobacco-charged violets to a refined lady. Then find some other mulching for the violet bed.

Chrysanthemums.

CHRYSANTHEMUMS.

I grow part of my plants in boxes, out of doors, and restrict them to crown buds, these as you know, come largest, and as the plants, when they are in the open are subjected to the natural ripening during August and September, they generally produce the earliest flowers. From these boxes I have just made the following notes. Among the varieties now in bloom, some of them last year were late and their earliness this year must be accounted for, to a certain extent, by the method of growing them, which usually results in earliness. Dr. Wakeley, a large bronze, in full bloom and of magnificent form, habit being dwarf to medium. Mrs. G. B. Darby, an English variety, is also in flower at this date; the flower is of a medium size, reflexed form of a very rich, brilliant pink color. Mrs. C. Meyers, also an English importation by me two years ago, is of very dwarf habit, and the flowers are handsome, twice the size of those of Mme. F. Bergmann, reflexing in form, and of a clear white color, shading towards the center a delicate lemon, with age turning pure white. H. L. Sunderbruch, immense yellow, is by far the best of all the early yellows with me both this year and last; it has been the first yellow to open. Its habit is very dwarf. Mrs. H. E. Wiedersheim, one of last year's novelties, also appears to be early, the flower is full and solid, a little above medium size, and of a beautiful Mermet or rose pink. It was awarded a certificate at Philadelphia last year. Majestic is also in full bloom. It is sport from



NEW EARLY WHITE CHRYSANTHEMUM DAY DAWN.

Mrs. E. G. Hill but I can see no difference between it and its parent, and think its originators were probably misled by a flower of the parent appearing a little brighter and not fading out as Mrs. Hill has a tendency to do. Yellow Queen is not holding up its reputation for earliness, as it is but half open. Madame F. Bergmann is ready to cut and about 30 other varieties are in a semi-open shape.

The next way in which I grow plants is in pots, generally of five to six inches size, they are from later cuttings and do not develop quite as early as those grown in boxes. In this class about the only variety which is open is Marion Henderson, whose color is magnificent, the flowers are fairly large and well developed. It should be classed as one of the best earlies, in fact in my judgment it is superior to Mrs. J. G. Whilldin.

The third manner in which I grow chrysanthemums is to plant them out on the greenhouse benches; none of these as yet is open, but a large number are showing color. One or two seedlings, which were early last year, are but three-fourths expanded now. Mrs. Parker is three-fourths open. J. H. Troy, lauded as an early, is but three-quarters open, and J. E. Lager is not yet showing color, these two are in boxes.

This is the date on which, last year, a number of the early flowering varieties were exhibited before the committee of the Chrysanthemum Society and awarded certificates, Amongst these were Mrs. M. R. Parker, Jr., J. E. Lager and J H. Troy and all of them had been in bloom some ten days or two weeks previous. This year they are just about in what might be called their prime, showing that the season is about this much later. The shop windows in New York also tend to demonstrate this fact, as but few varieties are shown. A new early variety of immense size and high built form, with dwarf habit and foliage close up to the stem named Marion Cleveland will appear this year for future honors, and I think will be disappointing to no one. Amongst other varieties developed at this date are F. Walz, a dwarf, of pink color but being a little pale will be against it. Mrs. W. H. Horley, of dwarf habit and having magnificent golden bronze flowers of more than average size.

The old and well known variety Whilldin, Miss M. M. Johnson and Mrs. H. E. Weidersheim are looking larger and handsomer than ever. Since last writing the bloom has risen above its former height and its waxen texture is very beautiful. Beau Ideal is large and looking well. Burt Eddy is a rather coarse flower with broad petals, of an unpleasant shade of magenta, its only recommendation being size. Golden Wedding although usually late is now about half developed and in grand condition, showing no symptoms of the dreaded disease so often reported from different sections. In my judgment the cause of this disease should be laid more to the grower than the variety, as from observation I have come to the conclusion the trouble is caused by overfeeding and over-watering. This statement applies equally as well to other kinds affected the same way and in confirmation of my views complaints are generally lodged against those which have sparse root action which make them unable to digest the excessive food. With me I have not a sick plant on the place and have not had for several years, and I attribute my success solely to careful watering and feeding. Esther Heacock, a yellow or bronze sport from Ada Spaulding is out and looking fine and handsomer than ever. Yellow Queen is also fully developed and ready to cut. Marie Louise on crown buds is in the same condition. This is a fine white of immense size. Mrs. E. O. Walcott does not look or do well on crown buds, it should be taken on terminals.

Dorothy Shea, an English variety, is of good size and pleasing form. Geraldine McCann, one of last year's novelties, has white shading salmon towards the center large, high, round blooms, very full and of novel marking. H. F. Spaulding, apricot color, Owen's Perfection, a fine white anemone; Mrs. W. H. Lees, a certificated English variety with pink outside petals, shading to white to the center, are all opening fine. Nemesis, very dwarf in habit is of a rich shell pink color, something after the order of V. H. Hallock but lacking in size. J. H. Reichman, distributed by Jones of England, although originating at Short Hills, is a fine large clear golden yellow bloom hardly yet in perfection, but it bids fair to hold its own for several years to come.

THOS. H. SPAULDING.

Orange, N. J., October 22, 1895.

CHRYSANTHEMUM DAY DAWN.

The beautiful flower shown in our illustration is a novelty of this season, originating with E. G. Hill & Co., Richmond, Ind. It was presented before the Chicago committee of the American Chrysanthemum Society October 19, and was recommended for a certificate. It is a large flower of the reflexed Japanese type, but with a slight incurving tendency near the center. The color is an ivory white tinged with faint sulphur at the heart. It is ready for cutting from the 15th to the 20th of October. The size and beauty of the flower, coming as it does at a season before many of the larger blooms, will make it valuable for trade purposes, and the same qualities will render it an acquisition to amateurs.

A NEW CHRYSANTHEMUM.

A subscriber, Peace Dale, R. I., sends us blossoms of a new variety and writes: "These flowers were full open the first of October and there are forty of them on the plant which is of sturdy growth standing two feet high. It is a seedling raised from Spaulding's Japan seed."

The flowers are very beautiful, full double and pure white, and the stems stiff. Should such earliness become fixed it will prove a valuable variety.

The Fruit Garden.

MY COOL GRAPE HOUSE.

I have frequently been requested to give a printed account of my procedure in erecting my cool grape house, and the preparation of its border and general management.

The location is upon a slight elevation. The house is a lean-to 40 feet in length, 13 feet in height at back and 3½ feet high in front. It is placed upon 12 granite blocks 5 feet by 8 inches. The grapery faces the south, the front and slope, and most part of both ends are of glass, but there is no glass in the back wall, and there is no fireheat in the house. You have illustrations of my grape house, also of my forcing house for plants, etc. in GARDENING October 1, both of these greenhouses seem necessary to make complete a suburban home. The forcing house is a low span-roofed structure with a range of attached frames on the south side of it. One thousand dollars will cover the pecuniary expense of both houses. Indeed, they could be erected for something less, but I believe if a thing is worth doing at all it is economy to do it well.

The grape house runs east and west, with full exposure of entire range of glass to the south. Its northern protection, as there are triple rows of coniferous trees

45 to 60 feet high on north side—separated only by a drive way, could not be improved. The prepared border for the vines is 12 feet wide outside of the house and runs its whole length, and the whole space inside of the house was also prepared as a border. The grade of house and outside border is 2 feet above the surrounding level.

Under the center of both house and outside border a drain was constructed to insure good drainage. It was excavated about 3 feet deep and the bottom to the depth of about a foot was filled with oyster shells and this covered with inverted sods, the top spit from an old pasture. We saved the loose soil (reddish sandy loam) and mixed it with decomposed barn yard manure, largely excrements from cows from a city milkman for the compost and later, added bone meal and wood ashes. Although the preparation of the soil under the entire house is the same as what it is in the prepared border we encourage the vines to find their nourishment in the outside border, as well as in that under house.

The house contains 13 vines, all foreign varieties; they are Black Hamburgh, Muscat Hamburgh, Golden Hamburgh, Wilmot's New Black Hamburgh, Victoria Hamburgh, White Chasselas, and Lady Downe's Seedling, some of them in duplicate. We have ripe grapes from the first of September till the end of November, the Chasselas coming in earliest and the Lady Downe's latest. From the time the grapes begin to ripen till after they are all cut we keep the ventilators more or less open according to the weather, but shut them against storms.

The grape house was erected in 1869, and is still in good preservation; new sills were put in ten years ago.

In November we prune the vines, spur mode and this has proved very satisfactory, indeed we have not failed to get a crop of grapes during the past 24 consecutive years. After pruning we brush the vines over with a solution of soft soap, lime and sulphur, about the consistency of cream. Take down the vines from the trellis, and arrange them along the lower part of the house and then cover them with straw matting to protect them from the sun during the winter months. About the 1st of April uncover them and tie them up to the galvanized iron rods used as a trellis.

As a rule we do not practice watering inside of the house. In early spring, we syringe the vines with tepid water to soften the wood. After the fruit is set we rarely water the vines inside the house except in extraordinary dry times during any part of the growing season. In this way we encourage the vines to find their support largely in the outside border, also we avoid mildew and other ailments to which vines are subject. I know this is contrary to the usual practice, nevertheless, it has been very successful with us. For this information I am indebted to the late Wm. Watt, a Scotch gardener and an expert in grape culture under glass.

I attribute our success largely to a very favorable location and the protection of the house on the north side and to the careful preparation of the soil, good drainage, and not watering inside of the house except in very dry times. We never use any liquid poisonous preparations for mildew, but we use pulverized sulphur freely scattered about the house all through the growing season.

BENJAMIN G. SMITH.

Cambridge, Mass., October 22, 1895.

CARE OF BERRY PLANTS.

Blackberry and raspberry plants in the north have cast off their summer drapery and are prepared for their long winter sleep. Let them be carefully laid down, covered with earth and nicely tucked up for this needed rest. Delay this necessary work no longer. If you have doubts as to benefits of winter protection, even in mild climates, protect a part, leave a part without protection, and mark the results.

After the ground is well frozen, strawberries should be covered lightly with clean straw or marsh hay. In spring this covering should be placed between the rows for summer mulch.

For pruning grapes bear in mind the following facts. The object in pruning is to get a well formed vine and a large yield of the best fruit. At least two-thirds of the new growth should be cut away for this purpose. Unless severely pruned more fruit will form than can be well matured. Remember, the vine bears its fruit on new wood only, so canes grown this year are the ones to preserve for fruit next season. Cut back the vigorous canes to three or four buds each, keep up a supply of new wood every year. Train the vine so it may be laid down and covered with earth in winter and raised and tied to a stake or trellis in the spring. One and two year old vines are not expected to bear fruit and are cut back to two or three buds.

Trim your grape vines in the fall. Remove all weeds, trimmings and surplus rubbish from the garden. See that every plant and bush is properly protected for winter. Cover the ground with finely composted manure and you may then look forward to a fruitful resurrection in the spring. M. A. THAYER.

THE BEST PEARS FOR HOME USE.

After an experience of some thirty five years with pears I find myself at a loss in selecting a half dozen varieties that would give general satisfaction to the farmer or for ordinary family use. When I left my farm on the borders of Seneca Lake, in Seneca County, nearly eight miles from Geneva, in 1870, I had an experimental pear orchard of more than 150 varieties. Some of these have since become obsolete, and are not now being cultivated, some, while perhaps occasionally of the very best quality, are not always reliable; some perhaps are suitable for special localities; others subject to rot at the core and need special pains to ripen them; and still others are subject to the early loss of leaves and by premature ripening are at such times of poor quality.

The only sorts that have stood the full test during all these years, and which I have found thoroughly reliable, are (1) Washington, (2) Bartlett, (3) Sheldon, (4) Anjou, and to these I would like to add (5) Bosc; of which Mr. Charles Downing once told me that if he was confined to only one variety it would be this: to which I would fully agree were it not that the tree is so subject to the blight, by which it is often killed outright. Still I cannot get along without it. It is irregular in growth in the nursery and should be top-grafted.

For the sixth sort I am at a loss what to say. The Seckel is too delicious to omit, yet the insects know a good thing and "go for it," so badly stinging the fruit, that often it is difficult to find many good specimens. Of course spraying would be a remedy, but this is generally impracticable to ordinary people. Then again it needs thinning in order that the balance of the fruit be of fair size. An interested amateur or orchardist would of course do this, but the common people will not. Some years ago I might have commended Howell, but for some years past it has so badly rotted at the core as to be entirely worthless with me, and I have had to discard it. Boussock is also sometimes a good pear, but it has a habit of early shedding its leaves, and so it cannot be fully commended. Lawrence is good and I know nothing particular against it, but Anjou is so much larger and so thoroughly reliable that there does not seem to be room for it. Flemish Beauty and others crack, Winter Nelis often bears "boy's wooden tops," and so I might go on, but objections would rise up leaving the sixth variety still unnamed and I will have to leave it so, with the hope that the planter can supply it with some variety that has proved reliable in his locality.

In regard to the first named, the Washington. I sometimes think that if I were confined to one sort it would be this. It is only of medium or small size, a regular and abundant bearer, commences dropping from the tree about the middle of August and continues for a month. While it could be picked and house-ripened, which would make it color up nicely, yet it is an "every day pear" that needs no coddling, and is delicious enough when picked from the ground. Sweet, juicy, refreshing and so pleasant and agreeable to the palate that a Bartlett tastes insipid after eating the Washington. Its growth in the nurseries has been abandoned, as although its good quality was known there was no demand for it. Why its merits have not been recognized is perhaps because it was an American pear and got passed by for the crowd of foreign varieties that have been introduced and praised. I may as well add that I am not in the trade, have no trees to sell and don't know who has, and hence I have "no axe to grind."

In addition to the above there are two other pears that should be mentioned, but they are much the best if grown as dwarfs, Louise Bonne de Jersey and Duchesse d'Angouleme. The first, however, is generally astringent under the skin, and therefore not always palatable, but it is very fine for canning or cooking, far superior to the Bartlett which is so generally used. Although personally I cannot commend cooked pears, yet many thus like them, and the good housewife is usually of the same opinion. If she will try the Louise Bonne she will never after want to use the Bartlett for cooking or canning. GEO. S. CONOVER.

Geneva, N. Y.

The Vegetable Garden.

THE VEGETABLE GARDEN.

It is now time to get all crops up out of the ground and stored away for winter use. Then get all the grounds cleared and cleared up, manured and dug, and everything left nice for winter.

GLOBE ARTICHOKES.—When sharp frost sets in cut them over, lay a shovelful of coal ashes or earth over each crown, and a good armful of leaves over that with a sprinkling of sedge or litter over all to keep it from blowing away. The cut over tops are excellent to lay over the leaves.

JERUSALEM ARTICHOKES are perfectly hardy and may be left in the ground all winter with safety. But we lift part now so as to have them when we need them

THE WASHINGTON PEAR AS GROWN AT DOSORIS

in winter; and leave a part undug for digging in spring.

OF SNAP BEANS we have lots yet in cold frames that are well banked around and covered on top with sashes and mats or sedge.

LIMA BEANS.—The pole varieties are past, the straw stripped from the poles and the poles stacked dry for use another year.

ASPARAGUS.—Cut over the old straw close to the ground, clear it away and burn it up. It is worthless as a mulch as all its leaves drop off soon after it is cut. If any roots are required for forcing dig them up now and store them aside till needed.

BEETS.—Get them all up, topped and covered from frost, and into a pit or cellar as soon as practicable. Keep them cool but away from frost When stored cover the heap with some hay, thin sod, a piece of old carpet or matting, or the like, to keep the beets from shrivelling; strewing a little moistish earth or sand over them answers the same purpose.

BRUSSELS SPROUTS are pretty hardy so long as they are left undisturbed in the field, but after being pulled ten degrees of frost will hurt them. Strip the rougher leaves from them, then pull them up and store them heads up, and the roots in some earth on the floor, and all close together in some dry outhouse or shed, or cellar not near a dwelling house (they smell so badly) where they can be kept dry overhead and protected from severe frost. They keep well till the first of April.

CABBAGE INCLUDING SAVOYS.—About the middle of November we pull them, strip off the rougher leaves, then place the heads close together and tops down in a single or double row, in a furrow in a dry spot in the open ground, burying the heads over with loam, and letting the root ends stick up out of the ground. This is good for mature heads. If only a few heads are needed they can be stored in a shed or outhouse cellar and covered up from hard frost. But as medium sized, green, not quite full grown heads are the best flavored cabbages, we lift them, strip off the rougher leaves, then set the plants touching close together, heads up and roots in the soil, in a cold frame or cellar, where they may have a little light and air in winter and we can get at them easily whenever we want them.

CAULIFLOWER having well formed heads can be lifted and stored like the green-headed cabbage, except that we must be more careful about excluding frost from it. Cauliflower whose heads are only forming or "button" size if heeled in in a frame or pit and kept free from frost will heart up about or before the holidays and come in very useful, but they must be kept from frost.

CARROTS.—Treat the same as beets.

CELERY.—Get it up now and stored past for the winter. If you have only a few hundred heads in a ridge cover it over in the ridge with leaves, hay, straw, rank manure, or any other convenient material at hand, and dig it out as you want it. But rather than dig a little every day dig out enough at a time to last you a week or a month, and store it, heads up, in a packing box in the cellar, having a little moist earth in the bottom of it. If you have plenty room dig it all up and store it heads up close together in a corner of a cool cellar or pit, or in a wide long box, the roots being on moist earth or sand; and see that it is dry overhead. We lift it out of the ridges and replant it into other ridges in double or triple rows, full depth deep, packed up with loam and covered on top with leaves or litter and boards to shed water and keep out frost.

CHARS.—Lift a few clumps and plant them in one or two small boxes to bring into warm quarters in winter to give young, fresh leaves for cutting for salads.

CUCUMBERS can be had all winter if grown in a warm greenhouse; a hotbed is good enough on this side of Christmas, but not so after that. The Telegraph breed of cucumbers are preferred for private use and winter cropping.

ENDIVE should be good now. If you lift a lot of it and heel it in pretty close in a frame, keeping it dry overhead and protected from hard frost it will keep in fair using condition for some time to come.

HORSERADISH is perfectly hardy, but it it is well to dig up a lot of roots now and store them in sand or earth in a box in a shed, pit or cellar for handiness to let us get at them any time we wish to in winter.

KALE is also very hardy, but before the ground closes up by frost late in November we lift the kale, strip off the coarser leaves and heel it in quite close together in a frame or pit as we do green cabbage.

LEEKS are very hardy, but in order to get at them in winter we had better lift them and heel them in close together in shed, cellar or pit.

LETTUCES in frames should be freely ventilated in fine weather, but kept snug against frost, and to save them from damping off the ground between them should be scarified now and again to keep it loose, open and dry.

MINT.—Get up some roots and plant them in a cold frame or in a box to be able to start them early in spring, for we can buy spring lamb long before natural growth mint can be had in the garden.

MUSTARD is one of the finest of winter salads. Sow it thickly in shallow flats in a warm house, window or greenhouse; while the soil should be damp we should keep the germinating plants dry overhead to preserve them from rotting They are fit to cut for use when from five to fifteen days old. White mustard is what is commonly used. Curled Cress is also grown and used in the same way.

ONIONS.—Sort them over and remove all soft wet, decaying or growing ones. Keep the sound ones in a basket, box or open-sided barrel, or in heaps on a dry floor of barn or on shelves, in all cases covering them from exposure to damp air or much cold.

PARSLEY.—By placing a couple of boards like an inverted V over a row and then covering it over with leaves and litter we can pick parsley from out of doors till New Years. For later use we should have some in a box or keg in the cellar or in a well covered cold frame.

PARSNIPS.—Lift half or two-thirds of them now and store them the same as carrots. Let the others remain in the ground over winter and dig them then.

POTATOES —Be they in bulk in pits or in barrels in the cellar be careful to protect them from frost and wet, and, too, as careful not to overcover them and cause them to heat and rot. If in the cellar keep them dark.

RADISH.—Nice ones can yet be had from hotbeds.

RHUBARB.—Dig up what roots are needed for forcing and store them out of doors or in a shed where frost can get at them. They need a good freezing to make them force kindly in early winter.

SALSIFY AND SCORZONERA.—Treat the same as parsnips.

SPINACH.—About the end of the month after the ground freezes hard scatter some sedge, fern, strawy litter or the like over the late spinach to keep it till spring. That for use in winter should also be covered up, but this is better done with a cold frame and sashes and mats.

SQUASH.—Bring them indoors into a warm dry place, 60° is the right temperature in which to save them good for winter use By merely covering them up enough in the shed or barn to protect them from frost they are apt to start early to rot.

TURNIPS, treat like beets.

I DON'T KNOW what I should do without GARDENING. I have just been going through my whole file—I began to have it in February '94—reading over all the articles on my special hobbies and learning afresh things that I ought never to have forgotten. I keep my copies marked with a blue pencil so that I can find quickly the things I want and I also keep a special index of my own in my garden note book of just the articles which have been most valuable to me, and that I need most often to refer to. E. T.

New Jersey, October 25, 1895.

GARDENING

WILLIAM FALCONER, Editor.

PUBLISHED THE 1ST AND 15TH OF EACH MONTH
— BY —
THE GARDENING COMPANY,
Monon Building, CHICAGO.

Subscription Price, $2.00 a Year—24 Numbers. Advertising rates on application.

Entered at Chicago postoffice as second-class matter.

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All communications relating to subscriptions, advertisements and other business matters should be addressed to The Gardening Company, Monon Building, Chicago, and all matters pertaining to the editorial department of the paper should be addressed to the Editor of GARDENING, Glen Cove, N. Y.

GARDENING is gotten up for its readers and in their interest, and it behooves you, one and all, to make it interesting. If it does not exactly suit your case, please write and tell us what you want. It is our desire to help you.

ASK ANY QUESTIONS you please about plants, flowers, fruits, vegetables or other practical gardening matters. We will take pleasure in answering them.

SEND US NOTES of your experience in gardening in any line; tell us of your successes that others may be enlightened and encouraged, and of your failures, perhaps we can help you.

SEND US PHOTOGRAPHS OR SKETCHES of your flowers, gardens, greenhouses, fruits, vegetables, or horticultural appliances that we may have them engraved for GARDENING.

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A LAUDABLE LOVE AND PURPOSE.—Mr. F. P. Livingston, of Pittsburg, Pa., writes: "I have a great love for plants and flowers and would be pleased to do anything I can to impart to others what little knowledge I have picked up while working among my flowers."

THE DOUBLE FLOWERED RUDBECKIA for cut flowers is going to be one of the most useful plants for amateurs. As we have, however, received several inquiries about it from commercial florists we would remind them that the florists' flowers in demand in summer, as a rule, are white ones, and that yellow is seldom called for. Bearing this in mind, if you wish to try it all right.

PLANTING BULBS IN THE FLOWER GARDEN is still in order. Indeed, many of us have not yet been able to get our bulbs planted because the ground had not been emptied of summer plants earlier. But finish up the planting of hyacinths, tulips and narcissi as soon as possible. Don't mulch the beds as soon as you plant them, wait till there is a good crust of frost on the ground first.

MAGNOLIAS ARE FRUITING unusually well this year, more especially the hybrids as *Soulangeana, Norbertii, speciosa* and the like. And too many of the species have borne fruit more plentifully this season than they do generally, *glauca, Kobus,* and the lovely *stellata* have had quite a crop, but neither *parviflora, Watsoni,* nor *hypoleuca* has yet fruited with us although they all bloom abundantly and each of them is considerable of specimen.

THE ANNUAL WALLFLOWER.—Some of our seedsmen since a year or two have made a good deal of fuss about this plant, but the majority of the firms haven't catalogued it at all. Now we grow it and esteem it highly. It acts as an annual in this way: Plants raised from seed sown in spring bloom more or less all summer long, and in fall they take a second spurt and bloom more than ever, and the flowers have the same favorite color and delicious fragrance of the wallflowers of our childhood. But it is not a plant that makes a big show at any time.

A CORNER IN BUGS.—Dosoris has got a corner devoted to the propagation of *Allorhina nitida,* the fig eater or green "June" bug of the south. For two years we have been watching the strange appearance and behavior of this bug among us, and now, in one corner of the island, and nowhere else on it, the larvæ of this insect occurs in thousands upon thousands. While a very common bug in the south, its breeding in quantity in New York state has not before now, so far as we know, been recorded. In fact common as it is in the south, very little indeed is known about its life habits.

LONG ISLAND ASTONISHED HIM.—One of our subscribers in Madison, Conn., right across the Sound from Long Island came over here the other day and had had his eyes opened. He writes: "I want to let you know (as far as ink and paper can be made to express my feelings) the pleasure of my trip on the Island. Ever since I can remember anything I can remember looking across to the distant shore of Long Island which is not always visible to the naked eye from this shore, and only the higher parts of it at any time, and thinking of it as sand banks. Of course in later years I have heard something of its reputation for fine potatoes, cabbages, etc., but until I took this trip, realized very little of its beauty, and richness in everything that goes to make life good."

LATE CHINA ASTERS.—We put in a large sowing in a cold frame June 10 last, and when they were large enough transplanted them into one foot apart rows in the garden. They were all done blooming by the middle of October. On July 3 we put in another large sowing in a cold frame, transplanting them to the open garden in due time. They began to bloom in the second week of October, and have been ever since and are now in fine bloom, but they are short stemmed. Of course frost injures them, but the afternoon before the night when we had the first sharp frost we got a lot of shallow boxes, or flats, and dug up the aster plants, retaining a small ball of earth to each, and packed them close together into the flats. We took them into the greenhouse over night, and placed them outdoors in the day time, and by this means are keeping up a nice lot of bright blossoms for cut flowers.

DON'T BE HASTY IN COVERING UP your outdoor plants for winter, be they shrubs, roses, vines, perennials or vegetables. If a plant is hardy enough to survive, even under a mulching, out of doors over winter it should be perfectly able to undergo with impunity whatever weather we may have before December. The winter-killing time for plants is towards spring, say after February. A short spell of intense cold weather does not do as much mischief in our gardens as does a long period of less intensity, and when the winter is waning and the light is brighter, and the buds swelling and the sap moving more rapidly than in early winter, the plants are far more susceptible to injury from frost. Inuring them to a little more cold in fall toughens them rather than renders them more tender.

Don't mulch your strawberry bed or spinach patch or pansy bed before there is a good crust of frost on the ground; and don't wrap up the rose bushes till towards or into December. Another disadvantage of early covering is the attraction it is to field mice. We like to get the garden cleaned up of all surface rubbish and raked off clean before we do any covering just in order to do away with every hiding place for these little animals. When the ground is hard frozen they cannot tunnel it and do the mischief they will when it is soft. Strawy or rank litter stuff of any kind harbors them, but they don't like ground mulched with well broken up or fine rotted manure.

OUTDOOR PLANTS IN BLOOM.

It is now the 28th of October and we have had two or three quite sharp frosts enough to kill down dahlias, morning glories and tender plants generally, still there is quite a lot of flowers in the garden. The sweet alyssum is fine, and there is a good deal of mignonette, perennial gaillardias are quite plentiful, so are pot marigolds; there are hundreds of July self-sown pansies in blossom, lots of single fragrant violets and a fair scattering of large single Indian pinks. There are lots of flowers on the verbena beds and the greenhouse carnations that we didn't need for lifting and bringing indoors are bearing lots of nice flowers. The little Siebold's sedum is in full bloom and quite pretty. *Aster Tartaricus,* although big and coarse is in fine bloom just now and very welcome. Snapdragons, campanulas, eschscholtzia, wallflowers and autumnal stocks have scattering flowers on them, and in the way of second crops we have the small (*cucumeritolius*) sunflowers, red and white valerian, bicolor rudbeckia, etc. Petunias here and there are bright and pretty yet, and even nasturtiums that have escaped in among the bushes have escaped the frost. In open places both cosmos and chrysanthemums have been hurt, but in warm sheltered nooks both are quite nice though late. Both tea and H. P. roses are giving us a few flowers, but both are now of rather poor quality. Cobæa, maurandya and *Solanum jasminoides* (generally called white potato vine) where sheltered, have a good many perfect blossoms on yet. And one of the prettiest of all our border blossoms is the everblooming little lychnis (*semperflorens plenissima*) so much has been made of since a year or two.

SHELTER.—Now while it might be a difficult matter to insure a full supply of any of these outdoor flowers so late as this by a little forethought we can have a liberal number. Shelter is of first importance. Wherever the plants have got into warm sheltered spots there the flowers have to a large extent escaped the frost and the blossoms are the most numerous.

THE EDITOR VISITS BOSTON.

When in Boston on the 18th and 19th of last month (October) we visited the Arnold Arboretum, Bussey Institute, Forest Hills Cemetery, Harvard Botanical Garden and Botanical Museum, and in the following notes advise our readers of some of our observations there. We shall not burden you with a lot of descriptive or technical matter, nor puffguish, but confine our notes to points of practical general interest.

THE ARNOLD ARBORETUM

Is at Jamaica Plain, a suburb of Boston, and it belongs to Harvard University. It contains a larger variety of hardy trees and shrubs than does any other arboretum in the world, and it is the most progressive institution of its kind extant. Professor C. S. Sargent is at the head of it, and Mr. Jackson Dawson is the superintendent. We have got to visit there most every year to get posted.

BERRIED PLANTS.—A prominent feature in the Arboretum was the multitude and variety of shrubs bearing ornamental fruit. Chief among these were Thunberg's and common barberry, spice bush, viburnums of several kinds, snowberry and Indian currant, wild and exotic single roses, bayberry, choke cherry, the black ink berry and the scarlet winterberry, several forms of spindle tree, privet, Chinese and common matrimony vine, common and Japanese climbing waxwork, frangula, mountain ash, some cornuses, aralias and others.

COLORED LEAVED SHRUBS.—So great is the multitude of trees and shrubs in the Arboretum that we cannot in a short note even mention one in a hundred that have claims for autumn tints. But we couldn't help noting how prominently Thunberg's spiræa, Thunberg's barberry, *Viburnum Lentago*, *Cornus florida*, *Rhus aromatica* and *R. copallina* stood out in brilliance among the vast array.

CARPETING PLANTS.—In parts of the Arboretum where the old large timber trees are growing the ground is covered with an underbrush of sumach, barberry, viburnum and similar growth of native shrubs and wild perennials studiously grouped and massed for effect, and at the same time intermingled so gracefully as to suggest the work of nature rather than the art of man. Particular kinds of shrubs as lilacs, viburnums, cornus and the like are planted in banks and spreads, each genus by itself, and the plants far enough apart to allow room for their future full development, and to prevent the ground between the shrubs looking naked it is covered over with some green low-growing carpeting shrub or vine, a very pretty and effective provision indeed and one that should be carried out in planting shrubberies in private gardens. Among the plants used for this carpet are Hall's Japan honeysuckle, the strawberry bush (*Euonymus Americanus* var. *obovatus*), *Pachysandra procumbens*, a little evergreen from the Alleghany mountains, and the Japanese rose Wichuraiana. Calling Mr. Dawson's attention to the thick mass of honeysuckle carpeting a certain bed we asked him if it didn't grow up into the bushes and bother him. "Oh no," he replied, "a man with a stout knife or shears can go around the shrubs there once a year and cut away every vine attempting to climb; it's only a few minutes' work and the job is done with for a season. You see what a pretty bank it makes. Grass wouldn't grow there without much trouble and attention, but the honeysuckle needs scarcely any." In gardens generally the common periwinkle and some forms of the evergreen ivies and hypericum are what are most commonly used for this purpose.

ACTINIDIA POLYGAMA is a slender woody vine from Japan, where it is abundant in the forests and mountains of the central and northern islands. The vine commonly grown under this name in our gardens and which we find to be so vigorous, far reaching and hardy is not *A. polygama* at all, but *A. arguta*. The true *A. polygama* is now at the Arboretum, where it was raised from seed collected in Japan; so far it promises well, but it has got to be further tested before we can say much about its desirability. As its leaves turn yellow very early in the season it is apt to have a value for fine autumn foliage effect as well as for use as a hardy vine. Both the above actinidias have some reputation as edible fruit bearing vines, and their fruits are sold in the markets of Hakodate and other cities in Japan, but they are not agreeable to the American palate. Mr. Dawson called our attention to a curious fact regarding *A. polygama*: "Now cover up that plant from the cats, for they are crazy for it, they not only roll on it but they eat it, and after they have eaten up the leaves and tops they scratch it out at the root and eat it. They ate up a whole lot of our seedlings of it."

MAGNOLIA SALICIFOLIA is a new species from Mount Hakkoda in central Japan. It has never been seen in bloom. But Professor Sargent found it in fruit in its native wilds and was fortunate not only in bringing seeds of it home with him, but in raising plants from those seeds, and we were delighted to see several thrifty young plants of this rare tree at the Arboretum.

DOUGLAS'S NEW ARBOR VITÆ. "There is a little arbor vitæ we had from Robert Douglas of Waukegan," remarked Mr. Dawson as he showed us a very odd looking form of this evergreen conifer. It looked almost exactly like *Retinospora filifera pendula*, with long thread-like drooping branches. It is genuine too, for it has the true arbor vitæ smell. The retinosporas, especially those like *filifera pendula* that belong to the species *pisifera*, are not thoroughly hardy in the northern states, they often get injured in winter, but as the American arbor vitæs are perfectly hardy this new pendulous variety is a very welcome addition to our garden shrubs.

A NEW TYPE OF ROSES.—We were shown a lot of seedling roses raised from seeds obtained from a missionary who had gotten them from a practically unknown (to Europeans) part of northwestern China. Their stems were thickly covered with moss like spines, and their leaves consisted of nine, eleven or more leaflets, somewhat glaucous underneath; the whole contour of the young plants, stems and leaves instantly reminded us of young sprouts of the rose acacia shrub (*Robinia hispida*).

ARE ROSA LUCIÆ AND R. WICHURAIANA THE SAME? Botanists so regard them, and *Luciæ* having the right of priority is retained as the proper name. But now in steps the gardener to smash the botanists' conclusions, he says that while *R. Luciæ* is a true species *R. Wichuraiana* is no species at all, it is simply a natural hybrid raised from *R. Luciæ*. In confirmation of this Mr. Dawson showed us a lot of seedlings he had raised from *R. Wichuraiana*, and they certainly display a great variety of forms, many of them having little or no resemblance to the parent; and he assures us that no other rose whatever in the vicinity was in bloom when the *R. Wichuraiana* was in flower, from which the seeds were gathered that he raised these seedlings from. But seedlings raised from seeds of *Rosa Luciæ* obtained from Japan are identical with their parent.

ROSA LUCIÆ, THE INFLUENCE OF GRAFTING ON.—'Last spring I raised a lot of seedlings of *R. Luciæ*, and while they were tiny plants about two inches high I grafted one onto a stock of *Rosa multiflora* that I had established in a pot, and there now is the grafted plant and there are the seedlings on their own roots." So spoke Mr. Dawson as he pointed out both to us. The difference was almost incredible. The seedlings were in boxes, one-stemmed and from eight to eighteen inches long, and looking fine; but the little grafted plant had made a bunch of stout, leafy branches or shoots that ran out from five to thirteen feet long. There was no gainsaying the fact, for we examined the plant closely and found all of the shoots to be this year's growth, and the stock itself only second year's growth. At the same time this is no proof that ultimately the grafted plant would be better than the own root plant. It shows, however, what a good stock *R. multiflora* is for working on, and what a rapid means of propagation grafting is when intelligently done.

A DOUBLE PINK HYBRID OF ROSA WICHURAIANA.—Mr. Dawson crossed *R. Wichuraiana* with the common garden rose General Jacqueminot, and among the seedlings raised from this cross is one with a somewhat general appearance of the mother plant, but its blossoms are exceedingly double, opening flat and of a pale pink color; in fact, he assures us they are almost an exact counterpart of the lovely flowers of Souvenir de la Malmaison rose.

PYRUS BETULÆFOLIA AS A STOCK FOR PEAR TREES.—This, the birch-leaved pyrus, is a Chinese species, and when seed can be obtained easily gotten up in that way. As it stood in the nursery rows it showed a free, sturdy, stocky nature, rather than the tall growths of ordinary seedlings of pear and apple trees But Mr. Dawson has an idea that it is going to be a great stock to graft or bud pears on; the wood is supple and workable, and it is a capital rooting plant, making an abundance of fibrous roots readily and "at home" instead of spreading out in long thongs; more than that it adapts itself bravely to light soils. At any rate he is going to graft a lot of the popular varieties of pears on this stock this winter, and have the thing tested practically. That's common sense.

LILACS GRAFTED ON SYRINGA VILLOSA.—*Syringa villosa* is a vigorous, one-stemmed, Chinese species of lilac, that of itself is an excellent and showy large shrub, and it is about as easily raised from seed as are lilacs in general (which isn't an easy matter for an amateur); more than that it is free rooting, hardy and so far as we have experienced not very subject to the ravages of borers. Mr. Dawson having raised a large lot of it from seed has used many of the seedlings as stocks to graft the finer varieties of garden lilacs on. The grafts have taken kindly and formed fine bushy heads. The advantages of the *villosa* stock are no disposition to sucker, and as it forms a quantity of roots all of these are at work for the support of the one stem and its head, rather than perpetually exerting themselves in the production of suckers as are common lilac stocks.

LILACS FOR AMATEURS for outdoor planting, however, had better be on their

own roots. GARDENING has always insisted on this and we are glad to say Mr. Dawson not only corroborates our advice in this but is making a special effort to get up all of their varieties on their own roots. This is done by raising them from cuttings of the current year's wood put in in July. But they are hard to strike. All of the new fine lilacs introduced within the last ten or twelve years were until a year or two ago grafted plants, hence many of the original plants are now perforated by borers till they are almost dead, in fact many have died and sprouts from the stock roots (when not on privet) are growing in their place. Had they been raised from cuttings every sprout that came up from the root would be identical with the parent, so that if the borers should riddle and kill out one stem plenty other stems, true to kind, would sprout up for the root to perpetuate the variety. When possible at all get your lilacs on their own roots.

SHORTIA GALACIFOLIA, although now not rare in cultivation, is a plant of great interest as well as being one of much beauty when it is in bloom. In 1788 the elder Michaux, the noted French botanist, collected a specimen of it in the North Carolina mountains. Aside from that little dried plant in Michaux's herbarium in France, not a vestige of this plant had ever been found or seen by any one for a hundred years after; indeed many looked upon it as a mythical plant. In 1877, however, it was accidentally rediscovered and in about the same place where Michaux found it, and in quantity, and since then it has been distributed far and wide. Mr. Dawson has it growing in flats, and he assures us that mats of it grown in this way are one of the loveliest things in the way of flowers he knows of. It is hardy here, but needs the shelter and partial shade of a rockwork or cold frame to get it in really good form.

A VARIEGATED NASTURTIUM.—In the greenhouse Mr. Dawson called our attention to a variegated leaved form of a dwarf scarlet flowered nasturtium that was very marked. The habit of the plant was quite stocky and leafy, and the leaves were of medium size, green and broadly banded with clear white; indeed the plants showed a strong resemblance to the variegated leaved Madame Salleroi geranium.

THE BUSSEY INSTITUTE.

Is the Harvard School of Agriculture and Horticulture. It adjoins the Arboretum. Prof. B. M. Watson is the instructor in horticulture. Practical and scientific branches are taught, and there are ample greenhouses and outdoor grounds for the prosecution of the work, and the inimitable arboretum close by affords them a field for further instruction. Ten students are now taking the horticultural course. "Why do they take this course—to what ultimate use do they put it? we asked our old friend the professor. "Well," he replied, "some of the young men after leaving here get into a landscape gardener's office and take up landscape work as a profession; others seek positions as superintendents of private estates; and not a few have fine properties of their own and being concerned in improving and beautifying them come here and study with aptness and interest."

I HAVE A high opinion of GARDENING. Its columns speak with the voice of experience, and are free from rubbish. I hope it will always remain so. J. H. C.
New York City

J. W. Elliott
Landscape Architect
Pittsburgh, Pa.

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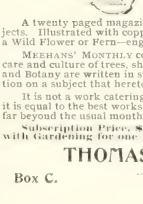

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PLEASANT WORDS.—No horticultural journal in the country gets more pleasant and complimentary words from its subscribers than does GARDENING, and these evidences of appreciation and kind feeling are particularly gratifying to us and spur us on to greater exertions in the interest of our our readers and in giving them the actual truth as we know it and understand it. And these compliments are no meaningless pleasantries, the high standing of their authors is an honor to any journal. Let us take the following:

I CANNOT HELP briefly expressing my appreciation of the careful and practical manner in which your journal is edited, and of the continued valuable character of the contributed articles. The little details of real value either of failure or success, which add to our positive knowledge, even if given in the plainest way and by the most inexperienced writer are preserved intact, while the "slop-talk" of the "Bessies" and others who fill columns of some so-called horticultural papers in descriptions of their personal surroundings and tell how very successful they have been in raising petunias in tomato cans, are as carefully omitted. I really don't know where else we can go to obtain in so limited a space, so vast an amount of interesting and practical information as is contained in the three volumes of your journal already published. N. F. PECK.

Conn., October 16, 1895.

YOUR ILLUSTRATION of my father's [Mr. Ellwanger the senior member of the firm of Ellwanger & Barry.—Ed.] rock-garden comes out very nicely, and he is much pleased with it, as also with your interesting and very comprehensive comments. I may say that your illustrations are always most excellent, and that GARDENING is always a dainty, convenient, practical, attractive, and interesting periodical. GEORGE H. ELLWANGER.

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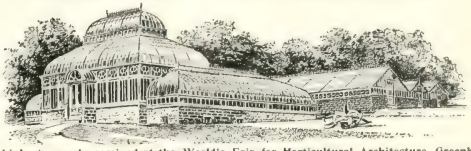

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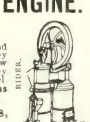

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GARDENING

Vol. IV. $2.00 A YEAR. 24 NUMBERS. CHICAGO, NOVEMBER 15, 1895. SINGLE COPY 10 CENTS. No. 77.

MR. CHAS. T. LOGUE'S HOUSE AND VERANDA PLANTS

House and Window.

A VERANDA DECORATED WITH PLANTS.

The illustration herewith presented is from a photograph taken on the 20th of September last. The veranda is in the rear of the residence and faces north, and is shaded about two-thirds of the day. I have found this to be a good place to grow a great variety of tropical plants, etc., as it is protected somewhat from high winds. As a rule the plants and beds are arranged differently each year. This makes it attractive not only to myself but to all lovers of the beautiful. Among the cycads and palms used for this outdoor decoration I have found the following to do well: *Cycas revoluta* (see large plant near "Paul") which recently made a growth of 37 leaves 4½ feet long at one time (under glass). *Cycas circinalis* is a beautiful plant, but it should be in a somewhat protected place. The palms used are *Areca lutescens*, *Caryota urens*, *Chamædorea elegans*, *Kentia belmoreana*, *Latania Borbonica* and several varieties of *Phœnix*. I have tried several small plants of *Seaforthia elegans* and have had nothing but failure with it. I use quite a variety of ferns, *Asplenium Nidus* (or the bird's nest fern) is a wonderful plant, it never knows when to stop making fronds, and large ones at that (see plant in picture at corner of house). Among other varieties used are a few nephrolepis, pteris, etc. The banana trees shown are Hart's choice and *Cavendishii*. They are very easily grown, all they need is a rich soil and plenty of water. In the hanging baskets I use a few large bromeliads and variegated pine apple plants. And they seem to stand almost everything in the way of neglect. On the right of the steps there is a bed of hardy ferns of about twenty-five varieties, which came from the mountains in this vicinity. They are planted in good soil about one-third leaf mold, and for the first year have done remarkably well, and the next year I expect to see something fine from them. The vines on the brick wall are the well known *Ampelopsis Veitchii*—and are two years old, they were raised from seed, which was sown where the plants are now growing. To grow this vine quickly I find that it pays to spray the brick wall every few days with water. I have done this and can easily see a great difference in growth as compared with others not so watered. The other plants used in front of the veranda were several varieties of dwarf cannas, alocasias, caladiums, aspidistra, cyperus, etc. We water them

almost daily during the hot weather and never allow them to dry out. Some plants are in pots, others are planted out. The small conservatory which you can see in the picture is 8x15 feet (heated by hot water) and is well filled with a choice collection of palms, ferns, orchids, alocasias, etc. "Home is what you make it" dear friends, go and do likewise.

Williamsport, Pa. CHAS. T. LOGUE.

PLANTS FOR VERANDA DECORATION.

And now about the pot plants arranged about my veranda and doorsteps, as shown on front page of GARDENING, Nov. 1.

After a busy day of toil and worry in the close and crowded city, how pleasant it is to rest in the easy veranda chair, surrounded with growing plants, each showing a peculiar leaf or flower, carrying the weary mind away from present trouble and resting it in a land of perpetual summer. We see our baby cocos palm with its fern-like leaves, expanding into a great tree of the tropical forest, loaded with the creamy cocoanut. Or our little Ficus elastica, with its glossy leaves, growing on the banks of the mighty Amazon, like a broad oak, rearing its head above the virgin forest.

The care of a few plants should not be beneath the dignity of any man, however elevated his position in life may be. Like every other occupation, to be successful, we must treat them intelligently, and thus it brings us back to nature, teaching us her many subtle ways while giving us a great contentment among the plants we love so well. In the spring, after all danger of frost is over, the palms and other decorative plants which have cheered us all winter, in the house or conservatory, may be placed in convenient positions about the veranda and a row continued down each side of the front steps. For this purpose the steps should be amply wide and long. Where there is a railing, it looks well to rest a palm or bushy fern on the top rail centrally between the veranda columns. If the top rail is not wide enough, or if it is made convex to shed water, fasten a block of suitable size onto the rail for the purpose of supporting the pot. If glazed jardinieres are at hand, use wherever desired; but always put a block of wood or brick in bottom of jardiniere so when pot is set in, it will raise the latter an inch or so from the bottom, allowing drainage water from the pot to escape. This must be examined and thrown out before enveloping the bottom of the pot; otherwise, it might sour the soil in the pot and kill the plant. Of course, no one will place the soil directly in a glazed jardiniere, expecting the plant to grow, as the lack of drainage might be fatal to the plant, unless it be an aquatic.

Many plants will be used that we do not care to get jardinieres for, so we take an empty pot of suitable size and set each potted plant (pot and all) into it, having the outside pot large enough to allow the plant pot to set clear down, so that the rims will be flush. Now place a glazed saucer or plate underneath. This will prevent the excess water from running across the floor or steps, when watering plants; it also preventing the circular stains on the paint of the floor caused by the continued damp condition of pot. The extra pot will prevent too rapid evaporation of the soil and will prevent the sun from burning the roots of the plants. Another point gained by this means is, that the plant is less liable to be blown over by the wind, on account of the extra size and weight of the base. All tall plants should be secured by passing a light, strong cord loosely about each of them and tying it to the column or hand rail. This will prevent the wind from upsetting the plants and save them from damage, and the porch floor from being soiled by the earth spilled from the pot.

In regard to watering veranda plants, they can hardly have too much if they are in active growth and the drainage is good. Once a day should be enough for 10-inch pots and over, but smaller sizes should generally be watered twice a day, and at each time see that enough water is added to cause some to flow from the bottom of the pot. Have the hose arranged so it can be brought on the porch and by directing the nozzle outward spray the foliage. This should be done each fine day.

The direct rays of the sun, if continued all day, will ruin the foliage of most all decorative pot plants. This can be easily prevented by choosing a position on the veranda to suit the requirements of each variety. It may often occur that where it is desired to have a delicate fern or palm, it would be subject to full sun until noon. If such is the cause, each morning remove the plant to a shady situation, and after noon return it to its former place. In this way, and with a little care, plants will thrive wonderfully, making a vigorous growth and being a source of beauty and pleasure all summer.

No doubt, most of us have our favorite plants which we desire to cultivate, but there are others who have not had any experience, and to those we recommend the following varieties as suitable for either flowers or foliage:

Plants that will thrive in full sunshine: *Ficus elastica* (rubber plant) and crotons. In open sunshine one half the day: Palms, chamærops, *Latania Borbonica*, and *Phœnix reclinata* and *rupicola*, lilies, *auratum*, *speciosum rubrum*, and *album*; also, spotted calla.

In sunshine until about ten in the morning or after four in the afternoon: Palms: *Areca lutescens*, *Kentia Belmoreana*, *Seaforthia elegans*, and *Khapis flabelliformis*; flowering begonias in variety, hydrangea, *Dracæna indivisa*, and dwarf Japan maples.

Shade: Most all ferns, *Cocos Weddeliana*, and Rex begonias.

In addition to the above, a few 10-inch pots planted with Tom Thumb and Lobbianum nasturtiums, and placed on the end of the steps with their vines trailing over the pots will look beautiful.

No veranda boxes are needed when cannas are planted in front, as, when properly cultivated, they will fill the space from the ground to the top of the railing. Nothing in a continuous line should project above this, as it would interfere with a good view while sitting on the veranda.

When a veranda has the proper exposure (to the east) no dense or rampant growing vine is desirable, so we plant the large flowering clematis, using it liberally and of different colors. Plant three at a column, and if flowers are cut off as their petals drop, they will bloom from May until after frost. At the south end of the veranda we may have inquisitive neighbors, so here we plant *Clematis paniculata* and Hall's Japan honeysuckle. As we recline in the easy chair, glancing upward, what is prettier than to see the racemes of the purple wistaria waving over the portal of the main entrance? and a vining rose, also the *Ampelopsis Veitchii* covering part of the railing, extending up one column and draping the veranda tower, with a companion of same variety growing at will over the outside brick chimney.

A novel and pretty effect can be produced by planting a few bulbs of *Lilium speciosum rubrum* among the clumps of *Eulalia gracillima* at the end of steps. At the base of the variegated *Arundo Donax* plant a few blood-leaved coleus (*Verschaffeltii*). As "Eternal vigilance is the price of liberty," so, also, it is the price of good plants, and with the addition of a strong sprayer the enemies of plant life must soon succumb.

Pittsburg, Pa. F. P. LIVINGSTON.

HOUSE PLANTS—QUESTIONS ABOUT THEM.

X., South New Jersey, asks some questions:

BAD WATERING.—"In GARDENING, page 166, 15th of February 1895, you speak of "bad watering" as killing more house plants than any other one thing. Do you mean too much water or too little? And how is an amateur to know? I am having plants in the house for the first time this winter, and of course confidently expect to kill them all, but equally of course should be glad to avoid it if possible."

Ans. By "bad watering" we mean watering plants that are already soaking wet, giving dry plants a dribble, enough to wet the surface only and insufficient to penetrate to the bottom of the pot; watering overhead at night in cool, dark weather, and in this way rotting the foliage; watering from top into the heart of a plant, instead of raising the fronds or leaves a little with one hand while you pour the water in with the other; watering plants when they should be dry and at rest, and other ways. There is no fixed rule equally applicable to all plants, for instance you may give a calla a can of water a day, if the drainage is perfect, and it won't hurt the plant, but one-fourth the quantity would do it as much good. If you soaked an azalea or begonia in this way you'd rot its roots and ultimately kill the plant. A beginner has got to learn these things by practice and by degrees but the knowledge is intuitive, and really a person who loves plants soon comes to know without any outside aid the general principles of caring for them intelligently. You can "kill them all," on the contrary we predict that you will have very agreeable success with your window plants.

TEMPERATURE—KINDS OF PLANTS.—"I always keep the temperature of my house as low as possible, as near 60° as I can, and never above 70°. It is furnace heat, but there are almost always open fires also. The plants are two begonias, a Paris daisy, and an azalea from the greenhouses, and two wall flowers, two single dahlias, a sweet geranium, and a heliotrope from my own garden. The two latter were very luxuriant plants, and I cut them back severely. The dahlias are also very thrifty big plants, but as they had been in a shady place when they had not blossomed at all I thought they would be likely to blossom in the house, and did not cut them back except as one or two big stalks got broken in moving. They have not wilted at all since being moved over a week ago, and are in big pots on the floor near a sunny window. The daisy and azalea also have a good deal of sun, but all the others are in a big east window, where the southern sun is cut off by a wing of the house and they have sunlight only for a very short time in the morning. Will they do well at all in such a position?"

Ans. The temperature is good for most plants. The begonias, azalea, and sweet geranium will do well enough in the less

AN AMATEUR'S GREENHOUSE

sunny windows, but the marguerite (Paris daisy) and heliotrope and dahlias like the sunshine. Either window is right for the wall flower but it dislikes both a high temperature and dry atmosphere. Dahlias seldom bloom well through the winter, at the same time they flower beautifully in November and often in December in the house or greenhouse. For this purpose get some of the dwarf varieties or brilliant colored single ones, pot them in August and after they have become root bound treat them to a top-dressing of fresh loam and manure, half and half, or bi-weekly liquid stimulants. Pot culture restricts their rankness of growth, and induces floriferousness.

WATERING.—"The greenhouse man told me to keep the plants 'soaked' all the time with water, but I have read elsewhere that you should not water them until the soil begins to whiten or dry on top. Is there any generally rule?"

Ans. Probably the florist knew from experience that beginners are more apt to give too little than too much water to their house plants, and advised accordingly. No, don't water a plant that is already soaking wet. "The soil beginning to whiten on top" is a very unsafe rule; any intelligent person can tell moderately moist from wet soil; if you cannot tell at a glance feel the soil with the finger, or ring the pot by hitting it with your knuckles, if it gives a light ringing sound it is quite dry, if a thud it is wet; or you may lift it to feel if it is heavy or not. When the soil whitens on top it is too dry for most anything except geraniums. No, there is no general rule. When the soil begins to get dry give more water.

LIQUID MANURE.—"I have very strong liquid manure made according to directions in GARDENING. Do the plants need it, and if so how much of it should be used and how often?"

Ans. Be careful. While liquid manure may be given to strong, well-rooted plants, it should never be given to poorly rooted ones. Your begonias, unless they are pot bound and strong gross-growing sorts like *rubra* don't want it, it would probably do the azalea more harm than good. If the heliotrope has filled its pot with roots, a little diluted liquid manure once a week will help it; if the marguerite is root bound a good soaking once a week will do it good; if your sweet geranium rose or oak one and grown for its green shoots and leaves for cutting, as soon as it is root bound give it a little now and again. The dahlias will likely go to rest pretty soon and won't need a stimulant. Never give liquid manure to a pot plant that isn't root bound.

"WHEN SHOULD THE AZALEA BLOSSOM?"

Ans. According to variety and treatment, between February and April.

STOCKS.—"I took up also some stocks from my garden, one of the biennial Emperor variety and two "Cut and Come Agains" that had not blossomed. With one accord they refuse to live. They were so quaint and pretty that this was a great disappointment."

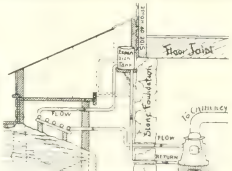
Ans. Stocks, as a rule, lift badly. For winter-flowering they are generally sown in June and grown during summer in pots plunged in the ground and mulched to prevent them getting dry too frequently.

The Greenhouse.

AN AMATEUR'S GREENHOUSE.

In presenting the following sketch of my greenhouse I do not wish to impress any one with the idea that I, for one moment, think I have a model, or one that cannot be improved upon; far from it, it is simply what any person could build at a very small cost; and it would be a source of much enjoyment to any one having the inclination and opportunity to do so. Build your greenhouse as much larger and better equipped as you can afford, but do not wait until you can afford to build what you have pictured in your mind as best suited to your liking. My greenhouse (if such it may be called) cost me but sixty-five dollars complete, including the Domestic Water Heater, piping, etc. As the illustration will show it is a lean-to built at the side of my house with an eastern exposure; it is 12 feet 6 inches long by 6 feet 4 inches wide. It is built on posts set in the ground, four feet apart, along the outer edge; the posts are covered on the outside with rough boards, over which is paper, and again weather boards, or matched siding, which thoroughly excludes the cold and makes a nice finish; upon this rests the framework and glass sides. The top or roof is made of sash, which can be raised or removed entirely at pleasure. Along the top, next to the house, is a row of ventilators on hinges which are raised or lowered from the inside. The entrance is from the cellarway, as the ground was excavated to the cellar floor level, to permit of head room and allow the roof to come under the dining room window. The bench on which the plants, or rather the pots, rest is four by twelve feet, and it also extends across one end.

When I first built the greenhouse I was at a loss to know how to heat so small a space, as I did not like the idea of using an oil stove, which is so often recommended, I therefore utilized a small coal stove, placed the same in the cellar, and made a coil of 1-inch wrought iron pipe, for the inside of the stove, then ran 75 feet of 1½-inch pipe through the cellar wall, and under the bench, up to a small expansion tank in the corner, as shown in the cross section, making a complete hot water system, the same as is used in the kitchen for domestic purposes. The stove part was not very satisfactory; when the fire would leave the pipes the water would not heat properly to main-



AN AMATEUR'S GREENHOUSE

tain the temperature during the night. The second year I looked around for something better to heat with, and found it in Hitchings & Co.'s Domestic Water Heater, a small inexpensive affair which did the work to perfection with little or no trouble, and which I could leave for ten or twelve hours without attention, and feel satisfied the temperature would not fall below 60°. I have since sold the heater, and am now using one of the same firm's base burning heaters, No. 23; in addition to heating my greenhouse I heat two rooms in my dwelling. I mention the fact as it reduces the cost of heating the greenhouse to a very nominal figure.

The friend to whom I sold the Domestic Water Heater uses it to heat a greenhouse (exposed on all sides) ten by fifteen feet, in a very satisfactory manner. He uses it under one end of the bench, which is bricked off, about four feet square, covers the brick work with iron, on which he puts sand and uses same as a propagating bench, the door of the fireplace opens outside, and he finds it works splendidly, with no dust or gas in the house.

I would add that the 1½-inch pipe I used under the bench was second-hand material, purchased at scrap iron prices.

The question naturally arises what can a person grow in so small a place? I will tell you. With the aid of the cellar, which I use as a sort of cool storage place, I am enabled to bring into bloom a fine display of flowering bulbs, or some specimen plants, and there is scarcely a day during the winter when one of the windows in my dwelling is without a plant or plants in bloom. It may be quite a pretentious display of hyacinths, narcissus, jonquils or freesias, or it may be a single plant of *Epiphyllum truncatum*, azalea, rhododendron, or an amaryllis of some choice variety. In addition to these I grow a few plants of heliotrope, ageratum, sweet alyssum and other soft wooded plants, from which my dining table is frequently supplied with cut flowers. From the blooming of the Roman hyacinths and narcissus, just before the Christmas holidays, until late in the spring, I am never without some blooming plant or bulb from my small and inexpensive greenhouse. M. H Jr.

Altoona, Pa., Oct. 28, 1895.

THE GREENHOUSE IN NOVEMBER.

Besides chrysanthemums, orchids, carnations, roses and violets, we have a good many other plants now in bloom in the greenhouses. Among them are *Statice arborescens*, a blue flowered almost ever-blooming plant. *Saintpaulia ionantha*, an ever-blooming blue flowered relation of the gloxinia, of the easiest culture in a warm greenhouse; begonias Rubra, President Carnot, Semperflorens rosea and Nitida; abutilons in variety; *Pancratium ovatum*, an evergreen species which requires only a partial rest in summer; *Allamanda grandiflora* and *Clerodendron Balfourianum*; *Ruellia macrantha*, a plant of easy culture with rose-crimson flowers; the pretty white pea flowered *Swainsona galegifolia*; the beautiful pendulous basket plant, *Æschynanthus Lobbianus*, with odd-looking rich scarlet flowers, and the pink and white varieties of cosmos, than which no more beautiful flowered plants exist, they have an airy graceful beauty all their own. For greenhouse decoration sow the seeds in March or April and take cuttings from these about the middle of June. Those planted outside were killed by the frost very early this year with us. We have also callas, bouvardias, blue marguerites, sweet alyssum, heliotrope and berried solanums, and shall soon have mignonette.

The florists around here are forcing sweet peas largely this winter, they do excellently in pots or boxes. As regards greenhouse plants the chief cultural points to observe now are: Don't over water, consider whether the plant has weak or vigorous root-action, give flowering plants full sunlight; admit air on all favorable occasions, but avoid cold draughts; see to the potting, or boxing of Dutch and other bulbs for winter decoration. Wm. Fitzwilliam.

Baronald, Orange, N. J.

The Blue Marguerite (*Agathæa cœlestis*).—Apropos of Mr. Fitzwilliam's reference to this plant, lest some of our readers, unacquainted with it, may think it is a blue flowered form of the white marguerite or Paris daisy (*Chrysanthemum frutescens*) we may say that it is very different. It is a dense, bushy, evergreen, herbaceous perennial, with moderately small, simple leaves, and a profusion of blue aster or daisy-like blossoms. It is a native of the Cape of Good Hope. Planted out in the flower garden in summer it keeps in bloom the whole season, and as a pot plant for greenhouse decoration it is also applicable and pretty all winter. Although it may be raised from seed when these are obtainable, it is easily propagated from cuttings and by this latter mode is the way in which it is generally increased. Either for indoor or outdoor use raise fresh plants every year.

VIOLETS IN THE GREENHOUSE.

J. R., N. Y., writes: "My violets have been in the greenhouse two weeks and are beginning to put out good blossoms, though not very many. I find it difficult to keep the temperature below 65° in the day time when the sun is out, but it goes much lower at night with all ventilators closed. While I want as much bloom as possible I do not want to force them. Must I make an effort to keep a more even temperature?"

The day temperature of your greenhouse is all right for violets. A night temperature of 45° by artificial means, higher if need be by natural warmth, and a day heat with sunshine of 60° to 65° in winter are what commercial florists usually adopt for their violets. In an amateur's greenhouse where violets are only one of many kinds of plants grown, what we call a cool house, that is one in which carnations, geraniums, and the like are grown will also do for violets. But above all things avoid a high temperature, a close atmosphere, and over-dryness.

PANDANUS VEITCHII.

F. C. D. R., Abilene, Texas, writes: "I have a plant of *Pandanus Veitchii* that has two young shoots about two inches long on its stem. Can I not use these to propagate from? If so, how can it be done?"

Yes, it is from the side sprouts only that this screw pine is propagated, but don't touch yours yet awhile, wait until they have grown six or eight inches long, then cut them off clean with a wee bit of the skin of the stem attached to each, and pot them into small pots firmly filled with sand or sandy soil, and keep in a warm, shady spot in your greenhouse, and especially away from where the least draught can strike them, and don't put them under other plants. Sometimes the sprouts emit roots while they are growing on the old plant, then it is an easy matter to sever them saving the roots, pot them, and get them to live, but with unrooted sprouts it isn't always so easy unless one has a close greenhouse, or a small propagating box or frame inside his ordinary greenhouse.

The Flower Garden.

IRIS.

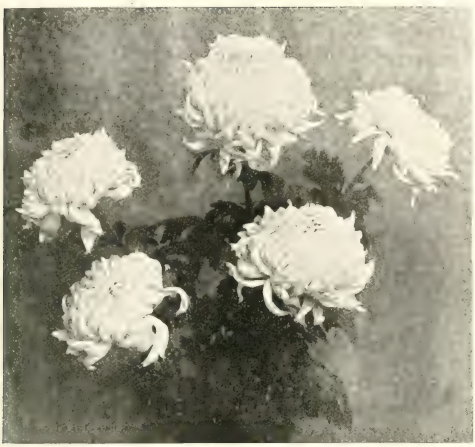
I have just planted in the borders of a shrubbery a few of all the different kinds of iris. Japanese, German, English and Spanish and the miscellaneous kinds, like *Florentina, reticulata, Bakeri, Histrio, Peacock, Lortetti* and *Fœtidissima fol. var.* I planted them in trenches two feet deep and a foot wide, filled in with well enriched earth, and put the iris about three inches below the surface. (1) Do they need protection for the winter? (2) And if so, what and how much? And (3) when should it be taken off? I can protect them with leaves, salt hay, a compost of cow manure and oak leaves, or the fresh horse manure and bedding just as it is thrown out from the stable. The ground has a slight slant and the trenches are arranged so that the iris can be flooded every day, or practically all the time, by letting the hydrant water run at half-cock. But (4) will this be as good for the other kinds of iris as for the Japanese and German? X.

South New Jersey.

Ans.—First let us separate them into groups. The Japanese or Kœmpfer's irises grow in strong tufts like the old Siberian iris, and may be flooded all we want to; *fœtidissima* may be grown in a moist border, in damp or flooded ground, and is amenable to the same culture as *Kœmpferi*. The German irises have surface-spreading thick rhizomes, and while they like rich moistish ground, we have found them very impatient of wet feet, and must advise against flooding them. The same with *Florentina* and *Lorteti*. The English and Spanish irises are strictly bulbous sorts, blooming in summer, and like a warm, sheltered place and good ground, but don't flood them. *Reticulata, Bakeriana, Histrio* and Peacock are also bulbous species, but a different set from the last two, and they all like sheltered spots and all object to flooding. Some of them, *Reticulata* and *Histrio* for instance, bloom while the crocuses are with us in spring. *Kœmpferi* should be planted with the top just up to the surface of the ground; surface-rhizomatous ones, like the German, should be planted so that the rhizomes are flat on the ground, but not under it; and all the bulbous ones under the ground about three inches deep, as you have done, is good. (1) In southern New Jersey probably all would get along well enough without a winter mulch, at the same time a mulching won't hurt any of them. (2) Two or three inches deep of well broken up rotted manure spread broadcast over the ground for all vigorous kinds, as Japanese, German, *fœtidissima*, Florentine, English and Spanish, but in the case of the German and Florentine place it aside from off the rhizomes, don't let it cover them, but a thin sprinkling of salt hay over them will do them good. (3) About the end of March or early in April, just before the plants start into fresh growth. The other bulbous irises may be mulched two or three inches deep with half-rotted leaves well broken up, the compost of cow manure and oak leaves that you have if it is old and well unfastened. And a sprinkling of salt hay over that. But great care must be exercised to remove the hay in earliest spring so that the flowers may come up unimpeded and perfect. The under mulch of decayed leaves, if rotted to earthly looseness, may stay on altogether and the plants allowed to come up through it.

THE FLOWER GARDEN.

We will tell you what we are doing now, Nov. 9, and intend to keep on doing till it is finished. We are going over the borders cutting down such perennials as *Sedum spectabile*, delphinium, physostigia, *Gaura Lindheimeri*, tall veronicas, pœonies, sunflowers, erect clematis, phlox, asclepias, and the like, and clearing the tops away to the rot pile. But we don't cut over the low leaves of pyrethrum, the peached-leaved bell flower, *Heuchera sanguinea*, *Statice latifolia*, hardy pinks, armerias, and others having persistent or evergreen foliage, only the old flower stems of these are cut off and removed. After having the borders all cleared off in



NEW CHRYSANTHEMUM OCTOBER QUEEN.

this way we mark with stout pegs driven deep into the ground the places of fraxinella, acanthus, platycodon, asclepias, callirrhoe, *Hyacinthus candicans*, gypsophila, and others whose crowns or bulbs or tubers are buried out of sight in winter. This is a safeguard against digging into them when we fork the beds over in spring. All varieties of plants as named sorts of phloxes, irises, pæonies, campanulas, pyrethrums, and so on are legibly and securely labelled, using long stout labels and driving these deep into the ground. Where some of the plants have run into others as perennial sunflowers, physostigia, and Pearl achillea are apt to do, we pull out the intruders as well as we can. The whole border is then raked off roughly and with the aid of a prong hoe levelled, but we don't dig it now. Digging now buries the host of little seedlings of poppies, larkspur and other plants that are scattered everywhere, and of which we may want to save a lot next spring; it would also unfasten many plants and thus render them easily heaved by frost in winter, necessitating replanting them again in spring, besides as many of the perennials will need lifting, dividing and replanting, and this is a poor season of the year to do that in, we prefer postponing the digging of the borders till spring. After levelling the ground, if we have any tuberous irises, tulips, narcissus, scillas, or other hardy bulbs to plant, we do so at once, marking their place with a stout peg or label. The borders are now ready for a coating of winter mulch, but we don't like to apply this till we get a good crust of frost on the ground. We then have a heap of common manure turned over and broken up, and of this we spread a good coating broadcast all over the border, being particular to cover the crowns of the plants to protect them from strong light and sudden changes of temperature in winter. In this way the border rests till early spring.

We have cut over the Kœmpfer's irises and cleaned up about them a little to get rid of field mice. Retaining their own tops with the drifting leaves they catch and hold is a perfect winter paradise for these mischievous and destructive mice, but the broken manure does not harbor them and it seems to protect the crowns just as well as their own leaves would.

While hollyhocks, foxgloves and Canterbury bells that self sow themselves among the shrubs and bushes live over winter without any apparent injury, those that are growing in open beds and borders should be protected. Do this by mulching about them quite heavily with tree leaves with some tree branches laid or litter strewn over them to keep them from blowing away.

We lift part of our tritomas and heel them into a cold frame in winter, and in earliest spring take them out, divide the clumps and replant in the open garden. A lot is also left undisturbed over winter where the plants grew in summer, with a mulching of tree leaves about them. On well drained land they keep very well.

ACHILLEA-DESMODIUM-VINES FOR PILLARS.

In cleaning up my flower garden for winter I cut the stems of the (1) Pearl achilleas down most to the ground, as I did the (2) desmodiums; was that right?

3. VINES TO CLING TO A SMOOTH PILLAR.—The large pillars to the two story porches of the professor's houses at Washington & Lee University are plastered as smooth as plastering can be made. Will ivy or any of the self-clinging vines take hold on it? If so what would you advise, there are a number of them and all would not want the same? L. G. C.

Rockingham Co., Va.

Ans. 1. You did right. It is strictly a herbaceous perennial and should be cut clean to the ground every winter. By the way, we cut ours down as soon as its summer flowers were past being worth cutting, and the plants soon started into fresh growth and bore a second crop of flowers lasting into November, but of coarse much poorer than was the summer crop.

2. Quite right. We do the same thing every fall.

3. We have three self-clinging vines, namely evergreen ivy (*Hedera Helix* and varieties), *Ampelopsis Veitchii* and the *Euonymus radicans*; true, we add the clinging form of the Virginia creeper. Now we don't think one of these would bind itself to the smooth pillars unaided by ligatures or some other help. But if each pillar was encased in a strip of galvanized wire netting, painted the same color as the pillars, these and most all other vines not too rank would find a happy home there.

Chrysanthemums.

CHRYSANTHEMUM OCTOBER QUEEN.

This is a new variety shown this season by Nathan Smith & Son, Adrian, Mich. It has attracted much attention from professional florists, and appears a valuable novelty. It belongs to the Japanese incurved section, and is a very large, pure white blossom, tinged with cream at the heart. It is a seedling resulting from a cross between Mrs. Jerome Jones and Armida, and is an early to mid-season bloomer, being shown before the Chicago committee of the American Chrysanthemum Society Nov. 2. The above committee commended it highly, recommending it for certificate. It has the handsome foliage of Mrs. Jerome Jones, and is a very robust grower.

MY FIRST CHRYSANTHEMUMS.

This is my first year trying to bloom chrysanthemums, and perhaps the experience that has been acquired may be of some interest. I have nearly one hundred varieties, purchased from several different specialists; they were planted the first week in May in 4-inch pots, then plunged out of doors, and when the pots were filled with roots we shifted the plants to 6 and 8-inch ones, mostly 6-inch. These pots were plunged as before and well watered, and after they were full of roots we fertilized weekly (not weakly) with liquid manure. September 1 we placed them in a cold greenhouse, and there they will have to remain, as my warm greenhouse was destroyed by fire last November. The greenhouse that was burned was my first attempt, and only a small one, and I had only a few chrysanthemums, bought from a neighbor. My Mrs Parker, Jr., is now in full bloom and stands two feet, 8 inches high, with thirteen blossoms and buds, several of the former measuring four and one-half inches across Ivory is nearly ready to burst, and stands two feet. E. Dailledouze is in an 8-inch pot and stands exactly six feet high from top of pot. Mrs. E. G. Hill, nearly in full bloom, and a grand plant too, standing five and one-half feet high, with fifteen fine blooms coming; it also is in an 8-inch pot. I also have another of same sort, purchased from another place than the fine one mentioned above, and although each plant was set out the same week and had the same treatment all through in all respects, yet it is only two feet, 10 inches high, and has not nearly the thrift and strength of the former. This leads me to think that many grow-

ers propagate the vital strength out of the stock by trying to do too much.

I bought quite a number of this season's novelties, and many of them scarcely had roots on at all. Philadelphia, for instance, was scarcely rooted at all; the consequence was I had hard work to get it to live, and have only dared to allow one bud to remain on the plant.

I have two promising seedlings that I will send you blooms from as soon as they are in condition, which will be some time next month; they may possess no commercial value, do not expect they will, but they are very beautiful.

I expect to rebuild my warm greenhouse the coming spring, and think if I raise my own cuttings of chrysanthemums they will have more vigor than some purchased. I feel that I know nothing, but am desirous of learning, and hope in time to be able to produce something that is good. It seems as though

GARDENING is better and better each issue that comes; I take three other similar publications, but get more practical knowledge from GARDENING than from all the others put together.

C. W. REDFERN.

Michigan, October 22, '95.

NEW CHRYSANTHEMUMS.

During a recent visit to Castlewood, the residence of Mr. T. H. Spaulding, at Orange, N. J., I saw thousands of seedlings and hundreds of named varieties being grown and tested. The greatest attention is given to weeding out the kinds that are worthless and preserving only what is good. Varieties are rarely sent out before their third season. All who have raised chrysanthemum seedlings are aware that sometimes a seedling is better the first year than ever afterwards; while some improve with their second or third season.

The most striking novelty, and one which is going to be sent out next year, is Marion Cleveland. It is a stout stemmed beauty, with incurved white with creamy center flowers. I measured a bloom of it that was 12 inches across, including depth and diameter. It is not "built up high," or it would be a record breaker in measurement, as it is it is a bouquet in itself. Its habit is vigorous.

YELLOW WM. FALCONER is similar in every respect to that fine hairy variety except in color.

Among the newest and best varieties I noted Sam Weller, a very fine large pink; Double Walter W. Coles, like that fine old variety without the eye; Fred Walz, fine lilac pink on stiff stems; Philadelphia, lemon yellow, a general favorite; and New York, a white sister of the last; Zulinda, fine incurved pink; Marie Louise, very fine white; Jayne, a fine incurved, well built up flower of a dark rose color; Esther Heacock, a globular bright yellow sport from Ada Spaulding; Camille D'Arville, a reflexed, white flower of spherical form; Dr. W. A. Wakely, distinct chrome bronze with inner petals suffused with crimson; Ethel Addison, immense, purplish pink; Wickham Jones, large, incurved, creamy white; Miss Louise D. Black, a medium sized, incurved, deep, golden variety of great excellence; Mrs. H. F. Spaulding, incurved, white; Bonnie Marjorie, creamy white, fine; Howard Reineck, lemon yellow, reflexed; Her Majesty, distinct, creamy white, center suffused with pink; Garza, a fine white anemone; Mrs. F. Gordon Dexter, single and perhaps the most fantastic of the anemones, but the habit of the plant is straggling; Columbine, globular bronze; Riverside, the best large early reflexed yellow; Dragon's Blood, dark crimson; Yoshiike, good, creamy white; T. H. Reichman, early, globular, golden yellow; Mrs. T. D. Hatfield, a solid incurved yellow of the type of Mrs. L. C. Madeira, but the plant is more vigorous; Clarence, a good pink; Amber Ada Spaulding, a sport that originated in California.

Trilby is a white and very desirable variety; Mrs. W. H. Hurley, a fine bronze; Tasmania, an odd variety, striped dull purple and white; Louise Seivers, yellow, Kioto type; Mrs. M. R. Parker, Jr., a valuable early deep pink, now being grown in quantity for market; Mrs. Potter Palmer, a fine pink of good substance; Dorothy Shea, an English variety after the pattern of W. W. Coles; Mayflower, tasseled, white, and Mrs. H. E. Wiedersheim, a fine early white.

A very fine variety is here named Princess Victoria, it is a combination of purple and silver, after the pattern of Mrs. Wm. Barr. Nathan Smith described in his catalogue of this year Princess Victoria as "creamy white, reflexed." Jeannie Falconer is of the finest lemon yellow flowers. As its root action is not vigorous, the plants are grown in shallow soil. C. Shrimpton, crimson and gold, is extra fine. And Wm. Seward, a fine dark crimson reflexes as it opens, forming a ball.

WM. FITZWILLIAM.

Orchids.

ORCHID NOTES.

As soon as *Cattleya Bowringiana*, *C. labiata*, and *Lælia Perrini* are out of flower remove them from the display house and place them in a house where they may rest, having a minimum temperature of say 50° at night. As regards the term "rest" let me explain: No orchids, unless such as are deciduous, like calanthes and cyrtopodium, need absolute rest. The pseudo-bulbs of cattleyas and lælias should never be allowed to dry and shrivel; and such as have no pseudo-bulbs, like phalænopsis and ærides, must always be kept moist. "Rest" simply means freedom from excitement—keeping the plants from growing before their time; prematurely forced orchids never flower well and soon give out. During clear frosty weather, when the fires are going strongly, damp the floors and benches well in the evening to create a moist atmosphere. A hygrometer in the orchid house to show the humidity of the atmosphere is a very useful little instrument.

The following orchids are in bloom on this place (Oct. 28) in addition to the orchids mentioned, page 40, and which are nearly all in bloom still; these are in flower, *Cattleya maxima superba*, *Cypripedium Spiceriianum*, and some seedlings, *Pleione lagenaria*, and some plants of the easily grown and free flowering *Vanda cœrulea*.

WM. FITZWILLIAM.

ORCHIDS FOR WINTER.

Many of the readers of GARDENING are interested in orchids and cultivate them; others would grow them were it not that they have a feeling that orchids must be constantly coddled, but this is a mistake, coddling them injures them. Orchids are a family of plants that really requires a minimum amount of care compared with other greenhouse plants to give great results, in fact if a few easy rules are established and acted up to there will be no trouble whatever in growing these plants satisfactorily. In my own green houses I grow several other kinds of plants—common commercial stock—which were I to neglect as much as I do my orchids sometimes they would be completely ruined, whereas the orchids show no ill effects whatever. There are some orchids I admit that have a tendency to fail after three or four years' captivity, but during this time they generally give far more blooms than enough to pay for themselves and care. But the standard sorts are not only longlived but they increase in size and floriferousness as they advance in years. At the head of this list I place the gorgeous cattleyas, then *Odontoglossum crispum* and *O. Pescatorei*, *Vanda cœrulea*, cyripedium in endless variety, *Dendrobium Wardianum*, *D. nobile*, *D. Phalænopsis Schrederæ*. This latter plant is a wonderful flower, with proper care it blooms freely from both the new growths and the old pseudo-bulbs. A course of cool and dry treatment in winter, and moisture and warmth in summer insure a heavy crop of flowers in the fall.

Cypripediums are growing in favor fast for cut flowers. Many critical flower lovers were wont to say "what a queer flower," and but few of the blooms were sold; nowadays, however, the most æsthetic people order them by the basket, and they are being sought after more and more every season.

The old and somewhat neglected *Cœlogyne cristata* when well grown is most lavish of its blossoms, and when in bloom is a valuable plant to the amateur. And by the way both this plant and *Cypripedium insigne* do finely out of doors in summer, giving them lots of water and a little shade from midday sunshine; this treatment improves their health and strength, and consequently increases their crop of flowers.

Plants of *Cattleya Trianæ* are now pushing their flower buds through their sheaths and should be carefully watered and given a brisk even temperature with a slight shade till the flowers are cut, when there should be a little reduction of heat, say to 50° or 55° at night, till the season of growth commences again. Keep the plants a little on the dry side, and water sparingly in the pot in order to keep the roots alive and well, so that they will have something to start with when spring comes.

To prevent scale keep a good supply of fresh Havana tobacco stems on the hot water or steam heating pipes, moistening them daily so that they may exhale the pungent vapor that is so deadly to insect vermin; and once in a while sprinkle a little sulphur among the stems and you need not trouble about the scale, which is the worst of all insect pests on cattleyas especially and on other orchids. It used to cost me many dollars a year to keep my orchids free from this pest, but now with the tobacco treatment I do not have any trouble in that line. Just as soon as the tobacco begins to get stale remove it and replace with fresh stems.

Plenty of atmospheric moisture is also in order when you are firing hard in cold weather; if you do not attend to this your flowers will be poor in quality and substance, for you must remember under different conditions the quality of the flowers is apt to be different. Do not heat your houses unduly with the view of getting better results in growth or blossoms, for parching artificial heat is often disastrous to the members of this family of plants. Many fine specimens of orchids are killed every year by wasting. Although they may come from hot climates they are plentifully supplied

with water either by rain or heavy dews, at least once in the twenty-four hours

Look out for snails, slugs and cockroaches. Oatmeal in which a little Paris green has been mixed is a great antidote for these pests. Wood lice will succumb to Hammond's slug shot. This little pest destroys many of the tender parts of the roots of many orchids and should be kept in check.

Do not be afraid to divide large specimens of cattleyas just before the season of growth begins, but don't overpot any plant. If you have a choice variety of cattleya with three or four leads on it, and it has been grown in the greenhouse for ten or fifteen years, I think it is safer to divide it than to repot it whole. Of course care must be taken that this be done at an opportune time, and each piece is potted into as small a pot as practicable, placing the base of the lead in the middle of the pot with plenty of drainage. Then place the plants in heavy shade and keep them close and warm, and be very careful about watering directly in the pot until the roots are well out and the plant has made sufficient growth to stand the water directly, and you will not lose 5%. I have seen many valuable orchids lost by careless watering and too dry an atmosphere.

WM. MATHEWS.

Utica, N. Y., Nov. 2, '95.

Trees and Shrubs.

HARDY SHRUBS AND PERENNIALS FOR A NARROW BORDER.

Please give me a list of deciduous shrubs and hardy herbaceous perennials suitable for a border 150 feet long. This border is 3 feet wide, and about 40 feet from the house, and it parallels a driveway. The soil in it is light and medium dry, but rich, and I have water to apply from water system. A strip of grass 3 feet wide runs between the drive and the border. J. E. P.

Moosup, Conn.

Candidly, we have got very few shrubs suitable as permanent occupants for such a bed, it is too narrow as a lasting home for even dwarf shrubs. Take *Deutzia gracilis* and *Berberis Thunbergii*, two of our commonest dwarf shrubs; they would do there firstrate for a few years, then they'd spread out over the margins of the bed. Again, there are some taller shrubs which with timely attention might be made to fit such a place, for instance the little tree, *Xanthoceras sorbifolia*, restricted to one stem about two feet high, and the pure white althæa, treated in the same way and headed back well every winter could be contained in such a border without their heads being allowed to interfere with the grass. Shrubs that won't be likely to spread out too far: Crisp-leaved spiræa (*S. bullata*), black broom (*Genista tinctoria*), shrubby St. John's wort (*Hypericum prolificum*), the blue daphne (*D genkwa*) and the mezereon, *Cistus laurifolius* (if hardy with you), the dwarf pea tree (*Caragana Chamlagu*), yucca and the Rocky Mountain jamesia. But these alone are a poor selection; we must add some others and be prepared to keep them within bounds: *Spiræa Japonica* (*callosa*) *alba*, *Philadelphus microphyllus* and *P. Lemoinei*; *Deutzia gracilis* and *D. parviflora*; *Ceanothus Americanus* and *C. obovatus*; the pink and white double-flowered dwarf prunuses; deciduous azaleas, and with them the evergreen *A. amœna*; tree pæonies, the golden St. John's wort (*Hypericum aureum*), *Itea Virginica*, a few dwarf Japan maples and *Berberis Japonica* for fine colored foliage, and *Photinia villosa* and *Periploca cratægoides*, for both flowers and ornamental fruit. And for effect in winter and earliest spring we should add the Japanese yellow-flowered witch hazel. But you can use only a few of these in the bed; they will be better and look better when they have lots of room, and the perennials among them will give the border a well filled appearance.

While there is an abundance of good perennials for such a place it would be well to give preference to those of neat habit and lasting good appearance like the evergreen candytufts, golden alyssum, white arabis (*A. albida*), double white and other pinks, *Heuchera sanguinea*, moss pink, crimson thrift (*Armeria*), and the like. Among others are dwarf irises, red and white barrenwort (*Epimedium*), *Hypericum Moserianum*, spring adonis, Siberian corydalis (*C. nobilis*), double white pyrethrum, Chinese larkspur, yellow and orange Iceland poppies, Missouri evening primrose, the greater *Anthericum Liliastrum*, the neater bell-flowers (*Campanula*) as *turbinata*, and Mariesi platycodon, Siberian pæony (*P. tenuifolium*) Siebold's sedum, and so on. Here and there a few clumps of bolder perennials as Rocky Mountain blue columbine, Florentine iris, Japan anemone, globe flowers, Cluse's doronicum, fraxinella, Japan Solomon's seal, and the Japanese spiræas (*Astilbe*). Add among these narcissi of sorts, species of tulips, bulbous irises, snowdrops, snowflakes, crocuses, squills, Siberian (*tenuifolium*), Thunberg's candidum, and other lilies of neat habit and perfect hardiness, and some other bulbs, single fragrant violets, pansies, and so forth and the border should be gay enough. But it will need thought to arrange them properly and that some may be in bloom all the time, and attention to give each one room enough and prevent all from overcrowding their neighbors, or reaching beyond their prescribed limits.

KALMIAS: HOW I HAVE SUCCEEDED WITH THEM.

I was interested in reading what Mr. A. F. Huston wrote in GARDENING, page 27, in regard to transplanting wild kalmias. My experience with them may prove interesting to those intending to try them another season, from either their native wilds or the nursery. A year ago last summer my wife was to visit some friends at quite a distance, and on leaving there she brought me four or five pieces of mountain laurel from the woods but with only the smallest kind of rootlets, as they were not dug up, but simply pulled up by the stems. I planted them carefully in what I thought to be a good location, in ordinary soil, not expecting them to live. I thought I would not take time or trouble to replace with the soil in which they should properly have been transplanted. No special care was taken of them during the summer except to water them once in a while in the dryest weather, and last winter to mulch them lightly with leaves. This spring they came out in fine shape; new shoots started from the roots and they had four or five bloom buds (which I removed as soon as started, thinking that allowing them to blossom would draw too heavily on on their vitality), and they have done well this summer. They did not make much growth, but, as I hope, have been establishing themselves, and making growth where they need it most, at the roots. Now, if these have lived, grown and budded with such slight care during a year and a half, after having been torn out by the roots and placed in the commonest soil, what would they have done if properly dug and placed in rich, congenial earth? [Don't give them rich soil. Be careful now, for your kalmias may not be out of danger yet.—ED.] I have always heard of these as being among the hardest shrubs to move from their original location, and, like many of our best natives, only to be had of nurserymen. [Although an exceedingly common shrub in our woods, only a few nurseries in the country keep it, and it is always high priced.—ED.] But I think this goes to prove how easily we are frightened, or trust too little to our own efforts, and that with the exercise of due carefulness as to soil and location, and common sense as to after treatment, those that are now thought to be the almost unattainable floral luxuries of the few would be found on almost any well kept country place. I envy Mr. H. his specimens. If he was a nearer neighbor I would like to call and see them; what a show he will have during June after they get established! He should have them photographed for GARDENING when in full bloom so that we may all (to this extent) enjoy them with him. And how seldom we meet with this magnificent native in cultivation; to my mind in its delicate and peculiar beauty in both color and shape of blossom it is handsomer than the petted and much vaunted rhododendron, though not as striking or showy. One in a great while we may see single specimens, but I have not as yet seen (except in my mind's eye), a large, well established and flourishing bed of it. We are falling over each other in our eagerness to get some new, showy or rare shrub or tree from Japan or other distant parts, and yet here almost at our very back doors are as beautiful, choice and quite as little known varieties which can be had for the reaching out of our hands and taking them. Generally speaking, they are much like the prophet mentioned of old—without honor or fame in his own country. Let all who can try at least one of these beautiful natives, but I think like all similar shrubs their greatest beauty will be found in beds and masses. J. C. B.

Hingham, Mass.

[During their blooming season in June if you visit the Arnold Arboretum, entering at the Bussey Gate you'll see thousands of fine plants in bloom. Or go out to Wellesley, to Mr. Hunnewell's place, and at the foot of the Italian garden terraces you can see many grand old plants of it in flower.—ED.]

OAK TREES OF BEAUTIFUL FOLIAGE.

In late autumn, sometimes weeks after many other beautiful leaved trees have lost their foliage, the scarlet oak (*Quercus coccinea*) presents a superb appearance. It can be identified by its retaining its foliage long after other oaks, hickories, chestnuts, sour gum and tulip trees have lost theirs, and singularly too, it at times does not take on its scarlet attire until other trees are bereft of foliage. It is the best of all for autumn color. The red oak is pretty, so is the pin, the white, the laurel-leaved, the post and the Spanish oaks. The red oak takes on a reddish color, the pin oak mingles considerable scarlet with its green, so does the laurel-leaved oak (*imbricaria*), the post oak (*obtusiloba*), and the Spanish (*falcata*) oak. A pretty purplish shade spreads over the green of the white oak.

To enjoy to the fullest extent and from near by the rich autumn coloring of these trees, they should be low branched. When the trees are trimmed to a high stem, one has to go a good distance away to see their beauty. Indeed, it required oak trees may be kept almost as bushes by constant pruning.

Philadelphia. J. MEEHAN.

POISON IVY—VIRGINIA CREEPER.

In our woods the poison ivy and the Virginia creeper are abundant. Both climb up the tree trunks, and to a child closely resemble each other. I deemed it prudent to warn my children of the dangerous character of the former, and in order to impress it upon their minds, resorted to "Kindergarden" methods. I said, "You have five fingers on each hand, that is good. The Virginia creeper has five leaflets on each leaf, that is good also. Suppose you were playing with an axe and cut off some fingers so you would only have three left, that would be bad. The poison ivy has only three leaflets on each leaf, and that is bad too." To tell them that one had five and the other three leaflets would in a few days leave them in doubt as to which was which but in putting it to them as above they remember it. W. C. EGAN.

A FINE WISTARIA, BUT PRUNING, DROUTH, AND FROST ALMOST KILLED IT.—L. G. C., Chrisman, Va., writes: "Last winter my wistaria was growing fast at Christmas, the summer's drouth and the severe pruning Mr. C. give it in the spring had held it back until the wet fall, When the cold came it froze and burst open to the ground and died as low down. It has grown up again, however, but will take some years to be tie tree it was, it had a trunk 18 inches in circumference.

The Fruit Garden.

ENGLISH GOOSEBERRIES—MY EXPERIENCE WITH THEM.

Some 20 years ago I had a desire to cultivate English gooseberries, but was told by members of the Massachusetts Horticultural Society that it would be in vain, and labor lost. Nevertheless I was not discouraged as I knew they had been successfully produced for several consecutive years by an English gardener on the famous Pratt Place, Oakly, at Watertown near by me.

My brother being about leaving for Europe I asked him when at Liverpool or London, to order from a reliable nurseryman one-fourth dozen each of *best selected* plants of named varieties, red, white green and yellow. When the plants were received I was more than satisfied, they were strong and vigorous then and have performed admirably ever since. Before receiving the plants, I remembered that the English climate was moist and quite different from our dry summers. I therefore selected a location for the plants on the north side of a tight board fence, six feet high, where they received the rays of the sun morning and evening, but not in the middle of the day. The soil was originally stiff clay, but we had it subsoiled two feet deep working in liberally sand and cow manure and the field stones were utilized for drains. The growth the first year was strong, free from mildew and other ailments. In early winter I cut out several canes from each plant and reduced the remaining ones about half; second year we had a good crop of berries in perfect condition, and have continued subsequently to grow them successfully to date, as the printed transactions of Mass. Hort. Society will show by its record of prizes. As a rule I think our failures in cultivation of fruit, indeed I may say almost any product of the garden or orchard, is in not carefully studying their requirements. The never to be forgotten Marshall P. Wilder used to remark a man easily discouraged in his work was not worthy the name of horticulturist.

BENJAMIN G. SMITH.

Cambridge, Mass., October 22, 1895.

PEAR TREE SCALE.

H. T. T., New Jersey, writes: "Can you give me any information about the scale on the bark of pear trees? I have some trees which I bought from a nursery two years ago and they are covered with scale from the ground up to the top?"

Were they ours we would root them out and burn them and replace with new guaranteed clean stock. If you wish to save them, you must scrape or scrub them all over with a short, very stiff bristled brush, being particular about the eyes and tips, then wipe them over with a solution of kerosene and whale oil soap. This isn't such a big job as it may seem, an active man will do a good many young trees in a day, and if carefully done the cure is almost complete. For the stems and main branches use a common scrubbing brush, for the small branches have a worn-out stiff paint brush with the bristles cut hard back to stiffen the stumps. Dissolve a half pound of whale oil soap in a gallon of hot water, and then add a quart or a little over of kerosene, stir it well up together, and use this for the paint or wash. We have used this strength in winter on pear, apple, walnut, lilac, willow, euonymus, and some other trees and shrubs with no apparent injury to the bark or buds.

The Vegetable Garden.

LEEKS.

Dr. O. F. R.; Mass., writes: "I have a lot of leeks and do not know what to do with them. They look like big scullions. They are still in the ground. What shall I do with them? In what respect are they better than onions? If one can raise onions why should he raise leeks?"

The leek is a very hardy vegetable belonging to the onion family. Its clasping leaves form a long, white neck or stem with a faint swelling at the base, it never forms a bulb like an onion, nor can it be dried off bulb-like as we do onions A few will suffice for a family's use. Just before hard frost sets in lift your leeks, and heel them in earth in a packing box or in a corner of the cellar, or in a corner in the garden out of doors, placing an inverted packing box over them and some leaves and litter over the box, the object is to keep the frost away from them enough to allow us to get them when we want them and not for any doubt about their hardiness. You ask why "why should we raise leeks?" Doctor, were you a Welshman you'd reverence the leek as well as eat it, were you a Scotchman the mention of cock-a-leekie would make your mouth water, were you physician of our grandmother's time you'd prescribe leek milk (milk in which leeks had been boiled till it became thick) to your patients for a cold, and were you a D. D. you'd occasionally remind your congregation that the leek was one of the good things the Israelites had in Egypt, and for which they afterwards sighed (see NUMBERS XI 5.). Nowadays leeks are cut up in thin slices and used in vegetable soup, or their long white stems boiled whole are used to flavor soup, and they are also served as a vegetable whole or shredded; stewed leeks, when properly cooked, are an excellent dish with roast meat, in fact they impart a flavor distinct from that of onions or garlic. At the same time a hundred times more onions than leeks are used in our homes.

WATERCRESSES—CELERY.

WATERCRESSES.—L. G. C., in Western Virginia, writes: "Please give me some instructions as to raising watercresses for home use. We have plenty of good water all over the place. We have four spring branches, besides our house springs of which there are three, and they never go dry."

Ans. Nothing can be easier raised than water cress. It grows freely in wet ground, in ditches and alongside of small streams. But the best way to grow it is in shallow running spring water on a sandy bottom. It is apt to be washed out of spring branches subject to occasional floodings by freshets. Prepare a bed in one of your spring overflows, a few inches deep—one to four—of water and with a sandy bottom, then get a bundle of cress from some one (if you cannot get it in your neighborhood we will be glad to send you some, for lots of it grow in as spring branch not far from here) and take the pieces and place them in the water with a stone on top of each piece to fix it to the sand bed. Some folks plant them with a dibble, but a stone, brickbat or clod is as good. The planting may be done now or in spring,

CELERY.—"How would it, do to grow my celery along one of these spring branches and take it up for wintering, as a freshet might take all the dirt off in fall?"

Ans. Just the place for it we should think. While celery loves moist ground, a stagnant wet land isn't a good place for it, it is too productive of leaf blight. But the moist land alongside of a spring branch is not apt to be sour, hence we should regard it as being a firstrate place for celery. However, celery is so fickle that we must ask you to try it as an experiment first before risking your full crop there.

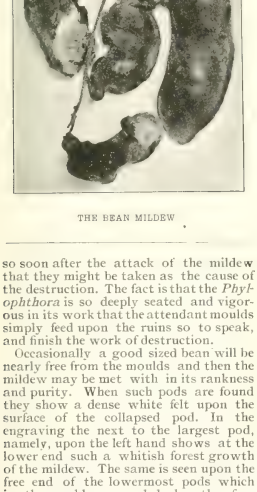
THE BEAN MILDEW.

(*Phylophthora Phaseoli* Thax).

The editor of GARDENING sends me for determination and further information a box of diseased beans with the statement that some fields of beans are badly attacked by the trouble in question. The beans received are infested with what is now known as the Bean Mildew. This is a genuine fungous disease and the destruction is caused by a mildew now known to science under the name of *Phylophthora Phaseoli* Thax. It is however, of quite recent discovery and for that reason and also because of its possible great injury to the bean industry in the near future it seems wise to present the subject with an engraving to the readers of GARDENING.

It is already not uncommon upon the Lima beans, as yet the writer has not met with it upon any other sorts of beans and he should be pleased to learn if it has appeared upon ordinary pole or bush beans. That it is not rare, may be shown by the fact that the writer when wishing

to make a photograph for an engraving for this article, did not use the specimens sent in the box, as they were not suitable, but went out to a field where he had not looked before and found at least a peck of pods and stems that were mildewed and ruined. The engraving is made from a group of two clusters, the five pods all being still attached to their stems. The pod upon the right hand is a healthy one, the engraving being taken with the subjects natural size. The portion of the bean plant usually attacked is the pods, and the mildew may be found upon them while they are quite small. Frequently the pods will become yellow and brown and usually various black moulds follow



THE BEAN MILDEW

so soon after the attack of the mildew that they might be taken as the cause of the destruction. The fact is that the *Phyloophthora* is so deeply seated and vigorous in its work that the attendant moulds simply feed upon the ruins so to speak, and finish the work of destruction.

Occasionally a good sized bean will be nearly free from the moulds and then the mildew may be met with in its rankness and purity. When such pods are found they show a dense white felt upon the surface of the collapsed pod. In the engraving the next to the largest pod, namely, upon the left hand shows at the lower end such a whitish forest growth of the mildew. The same is seen upon the free end of the lowermost pods which is thoroughly pervaded by the fungus, as shown by its shrunken and contorted appearance in the engraving. The two pods near the center of the picture are also ruined by the mildew, the upper one showing the white coating while the lower one only appears as a wrinkled and worthless pod which in fact is overrun by black moulds.

It is not necessary to go into the microscopic structure of the mildew further than to state that the minute threads penetrate all parts of the affected portions and rob the tissues of their vital sap. After a while certain threads come to the surface and branching bear innumerable spores, which with the branches bearing them make up the whitish patches. From these patches the spores are carried to other parts of the plant or field and start new centers of destruction.

This mildew is closely related to the *Phylophthora intestans* which causes the very destructive rot of potatoes, the one that is fatal to the crop in Ireland as to cause a famine in that island some years. From the nature of the bean mildew and the results that have been obtained with fungicides with the potato Phylophthora it is reasonable o infer that spraying with Bordeaux would be a profitable check to this disease. As yet the writer does not recall any experiments with fungicides with the bean mildew. He hopes however, next season to be able to write with more knowledge upon this most practical point. BYRON D. HALSTED.

Agricultural College Experimental Station, New Brunswick, N. J.

Mushrooms.

MUSHROOM BED, IS IT ALL RIGHT?

J. R., Scarborough, N. Y., writes: "I made a mushroom bed under the stage of the greenhouse some days ago, but it does not seem to heat. It is horse manure with considerable straw and a little fresh sod soil mixed through it. I had the manure taken from the heap, spread in a shed and turned several times in the course of ten days before putting it into the greenhouse; the bed is a foot deep and firmly packed, but not tramped. It feels a little warm to the hand inside but is quite cold on the outside. Is it likely to heat with waiting, or is it probably worthless?"

There is nothing amiss so far as we see. The temperature of the outside of the bed is about the same as the atmosphere of the house; slightly warmer inside is all right to set the spawn running. Spawn the bed, and if it gets too cold (inside under 65°) cover it over with some hay or straw; and after casing it with loam cover again with the hay or straw, keeping it covered three or four inches deep till it is time for the mushrooms to appear, when the straw should be removed for convenience in gathering the crop. But we cannot tell whether your beds are good or not. Without seeing and examining the beds and having a full knowledge of the details in connection with them we cannot tell anything positively about them; our remarks are simply of a general nature.

HAD POOR SUCCESS.—In November 1893 I bought the book "Mushrooms: How to Grow Them" and followed its instructions as closely as possible, with the result that from 300 square feet of bed, I gathered 120 pounds of mushrooms. Next year I hired an empty stable and sheathed it inside, packing the air space with fine shavings and in that built 1800 square feet of beds and from which I picked only three small mushrooms! Then I threw out all the beds and put in fresh ones and got 105 pounds from the 1800 square feet of surface. Three months ago I began again, and have now 900 square feet of beds on which, although they were spawned eight weeks ago, I cannot find a trace of mycelium, let alone see a mushroom coming up. J. J. J.

Bayonne, N. J.

THE NEW MUSHROOM (*Agaricus subrufescens*).—J. V. H. N., writes: "I raise mushrooms on my farm in Ulster County, near Kingston, N. Y., in the pastures, and would like to introduce the new mushroom there." Very good, but wait till May before planting the spawn. Spawn planted now is almost sure to get killed by wet in winter.

Books.

THE BALTIMORE CACTUS JOURNAL continues to flourish with all the vim of its promoters, the Baltimore Cactus Society. It is an illustrated monthly magazine devoted to cacti and other succulent and kindred plants and costs only 50 cents per year. We admire the spirit that prompted its birth, and the enthusiasm that sustains it, and would suggest to those of our readers who are interested in the spiny beauties of the desert to send for a copy.

AMERICAN GARDENS AND GARDENING is the name of a new $2 a year illustrated monthly magazine, gotten up by Mr. Lucius D. Davis, of Newport, R. I. The first number is largely devoted to the gardens of Newport. We extend to our contemporary a hearty welcome and wish for it a long, useful and successful life.

INSECTS AND INSECTICIDES, by Clarence M. Weed, D. Sc. This is a second and revised edition of this practical manual concerning noxious insects and the methods of preventing their injuries, by one who knows his subject thoroughly and has the good sense to place it before us in a concise, practical and easily understood way. It tells us about the damage caused by insects and how it can be modified or prevented. It illustrates and describes the insects in their various stages and shows their destructive work. It explains to us what insecticides are, and how to make them up, and when and how to apply them. The book is 7½x5 inches, and contains 334 pages, and there is a full and excellent index in it. It is published by Orange Judd Co., New York.

WAYSIDE AND WOODLAND BLOSSOMS, a pocket guide to British wild flowers for the country rambler, by Edward Step, is an exceedingly interesting, beautifully gotten up, and dainty little book published by Frederick Warne & Co., London and New York. It is about 6½x4½ inches, and contains 173 pages of matter and 155 pages of illustrations. There are 128 full pages devoted to colored pictures of 156 species of the most popular and frequently met with wild flowers; and 23 pages to black and white plates of as many plants. There are 400 species of plants described in the book. While the work is correct technically, it is written in such a delightful and popular way that the most inexperienced person who loves flowers must at once become interested, the more so when opposite every page we see a colored plate of such favorites as the daisy, wood anemone, fumitory, blue bell, rock-rose, pimpernel, broom, bluebottle, wild orchids, and so on; and black and white pictures of the trees. At the end of the work all the plants illustrated and described in it are arranged in their natural orders, genera and species; and there is a full index. The price of the book is $2.50.

AUTUMN BLOOMING SNOWDROPS.—Mr. F. W. Burbidge, of Trinity College Botanical Gardens, Dublin tells the *Garden* that the first snowdrop of the autumn (*Galanthus Octobrensis*) began blooming with him October 3, and was soon succeeded by another and much rarer species, namely *Galanthus Reginæ Olgæ*. Both bloom on scapes five or sixinches in height, that appear before the leaves.

GARDENING

WILLIAM FALCONER, Editor.

PUBLISHED THE 1ST AND 15TH OF EACH MONTH
— BY —
THE GARDENING COMPANY,
Monon Building, CHICAGO.

Subscription Price, $2.00 a Year—24 Numbers. Advertising rates on application.

Entered at Chicago postoffice as second-class matter.

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All communications relating to subscriptions, advertisements and other business matters should be addressed to The Gardening Company, Monon Building, Chicago, and all matters pertaining to the editorial department of the paper should be addressed to the Editor of GARDENING, Glen Cove, N. Y.

GARDENING is gotten up for its readers and in their interest, and it behooves you, one and all, to make it interesting. If it does not exactly suit your case, please write and tell us what you want. It is our desire to help you.

ASK ANY QUESTIONS you please about plants, flowers, fruits, vegetables or other practical gardening matters. We will take pleasure in answering them.

SEND US NOTES of your experience in gardening in any line; tell us of your successes that others may be enlightened and encouraged, and of your failures, perhaps we can help you.

SEND US PHOTOGRAPHS OR SKETCHES of your flowers, gardens, greenhouses, fruits, vegetables, or horticultural appliances that we may have them engraved for GARDENING

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HARDY PERENNIALS IN CALIFORNIA.—A subscriber in Oakland writes: "Here we have great natural advantages for growing hardy perennials, in our climate many perennials keep on growing out of doors all winter. I am engaged in raising cut flowers to sell, and I find that showy perennials that will grow outside the best and most salable things that I can grow, as I have no greenhouse."

STREPTOCARPUSES AS BEDDING PLANTS.—A writer in the *Journal of Horticulture* says: "Grown strongly under quite cool conditions in the spring, a full crop of bloom may be had from them during the summer. For filling bare places on the rockery too they will be useful." Probably so, but here we had better treat them about the same as we would Rex begonias, at least we have found that they are of little use in full sunshine.

MR. C. F. BAUSE, an eminent florist, died in England last month. He it was who raised the first batch of golden-variegated coleus—that was thirty years ago. In 1866 six of his seedlings were sold at auction in London for $1250. He was also a raiser of many other new plants, notably fancy-leaved caladiums, dracænas, dieffenbachias, and ferns.

CAMELLIAS.—In answer to "Amateur," Chicago: These evergreen shrubs, native of Japan, love cool treatment, moderately moist atmosphere, fair moisture at the root, and never any dryness, and thin shade from hot sunshine in summer. As pot plants, keep them at the coolest end of the greenhouse; but they thrive best when planted out in a bed in a cool conservatory. Use good loam mixed with leaf mould, and moderately small well drained pots, and pack the soil firmly in the pots. Try Parsons & Co., Flushing, N. Y. They grow quite an assortment of camellias.

NYMPHÆA MARLIACEA IGNEA.—In the *Garden*, October 26, there is a colored plate of this new and very beautiful hardy pond lily. It was raised by M. Latour-Marliac of France, and has bloomed in Mr. Robinson's garden during the past summer. The plate shows the deepest red blossom yet secured on a water lily. Mr. Robinson writes: "Not a very large kind but of rich and lovely color. The effect of the red water lilies is quite distinct from that of the large white, primrose and flesh-colored kinds; they seem to come from a different species, flower freely, and have a distinct growth."

THE LAST MORNING GLORY of the season is *Ipomœa Learii*, a tropical perennial species from Ceylon, and common in cultivation here. Its outer leaves got blackened by frost a fortnight ago, but the recent mild weather has set it to blooming again, and to-day (Nov. 9) there are many open blossoms on it, as it grows on a high wire trellis out of doors. Of course the blooms are small and inferior to what the flowers were a couple of months ago, but they give to *I. Learii* the distinction of being the only ipomœa of any kind, hardy or tender, annual or perennial, now in bloom out of doors.

A CANDID FACT ABOUT CHRYSANTHEMUMS.—We may rave over the beauties and usefulness of the little pompon or hardy chrysanthemums and against the coarseness of the big fluffy balls or mopheads of those in vogue to-day, but there is no gainsaying the fact these big blossoms are the people's favorites and the grower's ambition. Take a bunch of the little pompons and a bunch of the full and flowing giants of our greenhouses; ninety-nine out of the hundred people will choose the large blossoms. To a certain extent this is a pity, for the little flowers are very beautiful, and the plants are far hardier out of doors than are the large-flowered sorts, in fact they and some of the Chinese varieties are the only ones we can claim as being at all hardy.

OUTDOOR FLOWERS IN BLOOM AT DOSORIS.—It is now the 9th of November, and remarkably mild for this time of the year, indeed since a week we have had lovely weather. We have over fifty varieties of chrysanthemums in bloom, Gloriosum the finest of all, but of course none so good as greenhouse grown flowers. Cosmos is fair and plentiful, but we have better indoors. The same with carnations. Pansies are plentiful, so are single violets. Double violets are in bloom in frames, but none in the open air. Nasturtiums in warm sheltered spots are plentiful. China asters that escaped the frosts of a fortnight ago are bright and pretty and in quantity. Pot marigolds are fine, and there are lots of annual and perennial gaillardias, a few sweet scabios, verbenas, petunias and mignonette, and a sprinkling of snapdragon, and the sweet alyssum is as good as it has been at anytime this fall.

A LARGE CARRION FLOWER OR TOAD CACTUS (*Stapelia gigantea*) is in fine bloom at Kew. It is growing in a pot suspended from the roof in a hot, moist greenhouse; the fleshy four-angled stems grow out over the sides of the pot, hiding it from view. The plant has had seventeen flowers and buds. The blossoms are star-shaped, a foot across, creamy yellow dotted with brown and spread over with soft, white, silky hairs. It is the most striking and showy species of the genus and as disgustingly malodorous as any. Like all other stapelias it is a native of South Africa. We used to grow many kinds of stapelias and found that they luxuriated in summer when planted out of doors in porous but moistish soil. And instead of the frizzling treatment generally accorded to them, cacti, and other fleshy plants, being good for them, we found that they delighted in moderate warmth and moisture, and a thin shade; in fact the same kind of treatment best adapted for the epiphyllum or lobster-claw cactus answers admirably for the "toad cactus."

DEUTZIA LEMOINEI is a new and very valuable ornamental shrub, a hybrid obtained by the Lemoines of Nancy, France, between the common *D. gracilis* and the equally hardy *D. parviflora*. *Deutzia gracilis*, from the mountains of Japan, is a very common and beautiful small shrub in our gardens. Although *D. parviflora*, a Chinese plant, is still rare in gardens, there is no reason why it should be, for it is an exceedingly neat and floriferous shrub, and hardy, and blooms at exactly the same time as does *D. gracilis*, but with its umbels of white flowers ranged along its last year's shoots it has more the general look of a spiræa than a deutzia. We have grown it for eighteen consecutive years, and have no fault to find with it. The habit of *D. Lemoinei* is said to be intermediate between that of its parents, and its flower clusters are upright panicles of about twenty, one inch wide, open flowers, and arranged along the branches with more regularity than are the umbels of *parviflora*. It was first exhibited and brought to public notice at a meeting of the Société Nationale d'Horticulture de France, April 12, '94.

THE CHINESE GOLDEN LARCH.—(*Pseudolarix Kœmpferi.*) This is one of the most beautiful of our hardy trees. It is not a tall habited tree like a Norway spruce or European larch; on the contrary, in cultivation at any rate, its height seems to be medium or under, but its spread of branches from the ground up is wide-reaching and massive, but not at all stiff or formal like those of the Lebanon cedar. The finest specimen in America is at the old Parsons place at Flushing, L. I., and the next, so far as we know, is at Dosoris, where there are two fine trees. The better one is 21 feet high, 59 feet in diameter of spread of branches, and the trunk is 3 feet 6 inches in circumference. The branches spread out flat on the ground for 29 feet from the

butt, and from there in nearly horizontal layers to the top. The summer foliage is very thick, soft and beautiful; about the end of September or in October it begins to assume the golden tint that gave rise to its English name. These trees have borne cones for several years and this season they are laden with them. These cones are now ripe, and a curious thing about them is that the moment you touch them now (early November) they drop all to pieces. And they contain any quantity of fine ripe seed.

THE EDITOR VISITS BOSTON.

II.

FOREST HILLS CEMETERY

Is one of the most extensive and beautiful in the country and happily one of the wealthiest and most progressive. It is within a mile or so of the Arnold Arboretum. Mr. J. G Barker, our long-time friend and occasional contributor to GARDENING, is its superintendent. The entrance to the cemetery is the most beautiful of any we know, and we advise our readers who may go to Boston to visit Forest Hills and see the beautiful trees, fresh lawns, and fine garden effects to be found there.

TENDER BEDDING PLANTS.—Although it is imperative that a large number of these must be grown and planted out, selectness of variety and in the manner of using them is more studied than multitude of plants; indeed there is a tendency to lessen rather than increase this type of decoration.

HARDY PLANTS on the other hand are being used more and more, and a special effort is being made to get together every desirable and beautiful hardy perennial, be it native, exotic or of garden origin. These are not planted in formal beds or borders, but appropriately set here and there in masses, spreads or colonies with befitting backgrounds, and an extensive rockwork in a picturesque part of the grounds is teeming with them and hardy ferns. While bedding plants give a brilliant showy effect their gayness may become tiresome and their sameness wearisome; besides a too free use of them in a cemetery is not considered very good taste.

EVERGREEN SHRUBBERY BEDS are practically a new feature here, but one in much vogue with Bowditch and some other landscape gardeners. They are usually of moderately large size and set in the angle of a fork in the road or at a bend, or where it is desirable to retain a good appearance for the longest possible space of time. They comprise the finer spruces, firs, arbor vitæs, retinosporas, podocarpus, cryptomerias, araucarias, hollies, laurels, aucubas and the like in mixture and close enough to about touch one another. This planting is not permanent, it is for immediate effect only. All the tender plants as hollies, aucubas, Spanish laurels, etc. are lifted in late fall, heeled in over winter in a deep pit and planted out again in early spring. The beds filled with retinosporas, yews, podocarpus and others of doubtful hardiness, are protected in winter by a temporary close fence of cheap boards being tacked up around them. After taking down this fence in early spring it the evergreens are too close they are thinned out or lifted and replanted over again but thinner than before.

DECORATION DAY, of all days in the year, is when most people visit the cemeteries, and they then expect to see the planting finished and all the grounds bright, fresh and clean. Bedding plants being newly set out cannot make much of an appearance, but fortunately the hardy perennials are then in the heyday of their floral glory and the evergreen beds are budding out fresh and interesting, and the hardy shrubbery is everywhere in bloom, and the atmosphere redolent with the fragrance of flowers. Now the more hardy perennials, shrubs and evergreens that are used the better the work is likely to be done, and the less is the rush to get out the tender plants in the third and fourth weeks of May, oftentimes really at a season too early for many tropical plants to be committed to the tender mercies of the elements.

ENGLISH IVY in many places is doing splendidly. In warm, sheltered, partly shaded nooks it is used to cover up the steep rocky slopes, ledges or boulders. To save it from the sunshine in winter and the withering frosty winds Mr. Barker has sheets of coarse bagging dropped over it and fastened in place, this is done before hard winter sets in, and when it is removed in spring Mr. B. assures us that the ivy looks most as bright and green and healthful as it did before it was covered up.

ROCK LINED BANKS—The ground, like much of New England land, is uneven and very rocky, and steep banks border some of the roads, and some of the more select plats lie back to a high breast of rock or a steep bank. Of course these banks, no matter how steep they are or how gravelly and dry they may be, have got to be covered. It is almost impossible to keep grass green upon them in summer, and with grass in view they'd have to be sodded to begin with, and much of it would have to be resodded every year after to have it in fair condition. But Mr. Barker has to a great extent gotten over this difficulty by facing up the banks in a natural, irregular way with slabs of the ornamental rocks that are blasted and cleared on the place, and among these rocks he has planted hardy vines and shrubs; at the top shrubs are set out to give a natural fringe, and vines as clematis, Virginia creeper and trailing roses to drape down over the rocks; and at the bottom clinging vines as ivy and ampelopsis are planted to grow upward to clothe the stones, and maybe a skirting of perennials and a few shrubs to deprive it of any artificial appearance.

RHODODENDRON MAXIMUM is our wild great laurel or rose bay; it grows wild in the rocky woods and mountains from Nova Scotia south through New England, New York and along the Alleghenies to Georgia. It is a large growing evergreen species with pale rose colored flowers that come into bloom with us in July, after all the other garden hybrid varieties are past. Although it is an exceedingly desirable ornamental shrub we seldom find it in our gardens, more's the pity. We were therefore the more delighted to come upon bold masses of it in the cemetery grounds, large, broad, old specimens, and to listen to their praises by Mr. Barker. We have before now called our readers' attention to this worthy shrub, and we recommend it again to them. Being native in our eastern mountains it is perfectly hardy, and as it is a true species and raised from seed the plants are not grafted but on their own roots, hence more likely to root well and continue in luxuriant health than are hybrids. But mind you, you want both—the hybrids for deep color and June flowers, and Maximum for July blossoms.

A PIGMY SPIRÆA.—Mr. Barker called our attention to a tiny kind of spiræa he had in quantity growing in pots in a cold frame. It formed dense little tufts about three inches high, nevertheless it was free and thrifty, and perfect cushions of metallic brown foliage. It grows well and is easily propagated, and he uses it for edgings and as a low plant in bedding, but it has never bloomed with him and he is not sure what species it may belong to.

A NORWAY SPRUCE HEDGE.—Mr. Barker showed us a stretch of a very good Norway spruce hedge and remarked: "We never trim it except once in two years, and then in July."

BERBERIS THUNBERGII was largely used as a low growing shrub spread between and skirting the rocks, and when we saw it its foliage had turned to a vivid crimson and gold, giving it a splendid effect. Add to this its glossy scarlet berries which are abundantly produced and hang all winter on the naked branches of the shrub, even till the new leaves appear in spring, and we have a gem of a little shrub that is both hardy and easy to grow.

THE GRASS LAWNS in a cemetery are necessarily very extensive, in fact aside from the roads and flower beds all the ground is under grass, and it has got to be kept as clean and well mown as the lawn in any private garden. In former times little mounds were raised over the graves, but according to modern regulations these mounds are no longer made, the burying ground is smooth and level and the graves are indicated by stone markers. This adds greatly to the beauty of the newer parts of the cemetery. Nor are stone curbings or iron railing any more allowed around the newly acquired lots; in the older parts of the grounds where mounds, curbings and railings existed before the new regulations went into force the corporation are powerless to make any change.

WEEDING THE GRASS.—"What are those men doing there?" we asked Mr. Barker as we saw a number of men on their knees picking among the grass. "They are weeding the grass," he replied. "You see the grass seed used there was some extra select lawn mixture, and sure enough it was a mixture judging by the amount of weeds that come up among the grass. I'll never buy any more grass mixture."

SODDING.—The terrace banks and margins of the lawns, say alongside the roadways, are sodded, but wherever the land is level and broad getting up a lawn from grass seed is preferred to sodding, the seed giving a better and cleaner lawn.

"THE GRASS SEED I use now is Kentucky Blue and Red Top mixed together, and never any other grass or clover, and you see what a fine, even, clean carpet of grass we get from it. That grass there that is so green and thick was sown about the first of September, but all that new ground we are at work on grading and getting ready will be sown about the first of November. We have excellent success sowing at that time. We sow the seed, rake it in and roll the ground, and the seed lies dormant in the ground under the snow till early spring, when it comes up sooner than spring-sown grass, takes good hold of the ground and makes a nice carpet right away."

TOPDRESSING THE GRASS.—"No, I have given up the use of stable manure altogether as a topdressing for grass, and confine myself to chemical manures and unleached wood ashes only. The grass keeps in fine condition as you see, a vast amount of labor is saved, and then we are rid of one of the greatest sources of weeds in lawns, namely, topdressing with

stable manure. We topdress with the wood ashes about the first of November, and have excellent success by doing this."

GRASS V. GRAVEL PATHS.—In the older parts of the cemetery narrow gravel paths used to run hither and thither wherever it was desirable to get to on foot, thus giving the landscape a needlessly cut up, patchy appearance. But modern ideas repudiate these little gravel roads, as being more than needless, for unless they are kept neatly edged, clean, smooth and nicely gravelled they give an ill-kempt littery appearance to the grounds. Mr. Barker favors filling them up level with the lawn and sowing them with grass so as to form part of the lawn; in this way they can be kept even, smooth, clean and well mown, and so far as a pathway is concerned serve every purpose that the old gravel walk would, in fact the grass is better, for it permits of more people walking abreast than the gravel paths would allow. In proof of this he called our attention to several old gravel pathways that had been filled up and grassed over, and certainly the grass was a marked improvement over the gravel. This point is as pertinent in the case of private gardens as in cemeteries, for one of the commonest mistakes a person is apt to commit in planning a garden is to cut out too many walks in it.

THE GREENHOUSES consist of a group of spacious and serviceable Lord & Burnham ranges. Mr. Barker spoke highly in their praise, they are light, roomy, perfectly tight and easily heated. In running a greenhouse he was emphatic in advising plenty of heating pipes. With plenty of pipes there is no need of rushing the fire to keep the water quite hot; the more the pipes the less driving of fires, the milder and better the heat, and the less coal is consumed and the less labor is taken up in stoking.

CROTONS AND ACALYPHAS AS BEDDING PLANTS.—Pointing to a bench of these Mr. Barker remarked that of all the tender colored leaved plants they use out of doors in summer the crotons and acalyphas give them the most satisfaction, they grow well and color beautifully and are not an easy prey to changes of weather.

THE BOTANICAL GARDEN, CAMBRIDGE

Is the botanical garden belonging to Harvard University and is right across the street from the Observatory and between ten and fifteen minutes' walk from the college buildings. It contains a vast collection of hardy plants arranged in botanical order and sequence, and a large variety of tender plants in the greenhouses. Dr. G. L. Goodale, the professor of botany, s the Director of the garden and Mr. R. Cameron the superintendent. In one of the warm greenhouses we noticed an unusually large and well-leaved specimen of the Madagascar lace leaf plant (*Ouvirandra fenestralis*) in fine form and bloom. It is an aquatic with a rosette of broad leaves which are a network of venation open as a sieve. Within the garden are the botanical library and herbarium building; and what were the botanical museum and lecture rooms, also the residence of Mrs. Gray, the widow of the late Dr. Asa Gray. Both the herbarium and botanical library are the fullest and most complete of their kind in the country.

THE BOTANICAL LABORATORIES, LECTURE ROOM AND MUSEUM

Used to be in the rooms in the botanical garden, but since a few years a large building for these departments has been

[CONCLUDED PAGE 78.]

HORTICULTURAL BOOKS.

We can supply any of the following books, postpaid, at the prices given.

HOW TO GROW CUT FLOWERS (Hunt).—The only book on the subject. It is a thoroughly reliable work by an eminently successful practical florist. Illustrated, $2.00.

GREENHOUSE CONSTRUCTION (Taft)—It tells the whole story about how to build, and heat a greenhouse, be it large or small, and that too in a plain, easily understood, practical way. It has 118 illustrations, $1.50.

BULBS AND TUBEROUS ROOTED PLANTS (Allen).—Over 300 pages and 75 illustrations. A new work by a specialist in this line. Tells about lilies, cannas, dahlias, hyacinths, tulips; and all manner of bulbs and how to grow them indoors and outsides, summer and winter. $2.00.

MUSHROOMS: HOW TO GROW THEM (Falconer).—The only American book on the subject, 29 illustrations. Written by a practical mushroom grower who tells the whole story so tersely and plainly that a child can understand it. This book has increased mushroom growing in this country three fold in three years. $1.50.

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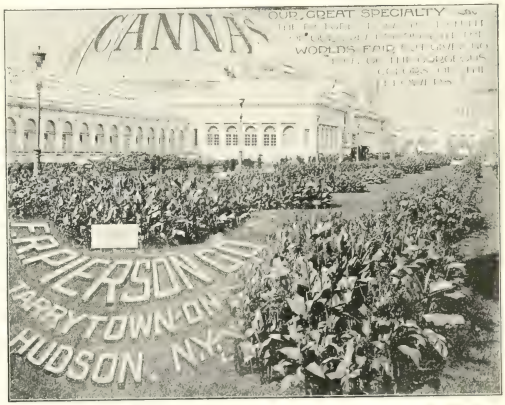

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erected in the college grounds. No doubt this is a much better arrangement and much more convenient for the students, indeed the extraordinary size of the botanical class of to-day (240 students) over what it was when the lectures were given at the garden (when 80 to 100 students attended) are proof enough of the desirableness of the change. Besides, in the new building there are far greater facilities for laboratory work, and much more room than in the old one. In this building is also displayed the wonderful BLASCHKA COLLECTION OF GLASS FLOWERS

And we have to thank Dr. Goodale, for an invitation to view it and for his kindness in showing and explaining it to us. About a thousand species of pl nts in four hundred genera, if we remember aright, are so far represented in this collection, and it is being added to at the rate of a hundred plants a year. Each "flower" consists of a spray of leaves and blossoms, 12 to 20 inches long, life size and lifelike in color, form, and the minutest scientific particular. An analysis of the flower parts enlarged forty to fifty diameters is also given, and occasionally fruits in whole and in secti n are shown. These specimens are made by a secret process, and the coloring is indestructible. The artists are L. and R. Blaschka, father and son, living in Hosterwitz, Germany, and Harvard University has a 10-year contract with them by which they bind themselves to assiduously prosecute this wo k and do no work of any kind for any other person or persons whatsoever during this period. These flowers are mounted on white card board, properly and plainly labelled and displayed before the public in a series of glass cases. And they have created so much interest that all day long while the museum is open there is a crowd of people poring over them. Thier beauty, life-likeness and perfection are astonishing, and their botanical accuracy perfect both to the eye and the microscope. In proof of the latter Dr. Goodale took up a little blossom that had been accidentally broken off the spray in its transit hither from Germany and asked us to examine it. It was perfect. He then gave us a powerful magnifying glass to aid our eyes, and we found that the backs of the waxy petals were a thicket of little pointed tubercles, such, were also peculiar to the natural flower, but in neither the natural nor artificial blossoms were they visible to the naked eye. It is almost incredible that such nicety of workmanship could be performed by human fingers, but there it is.

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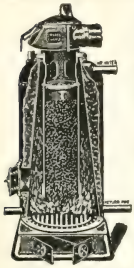

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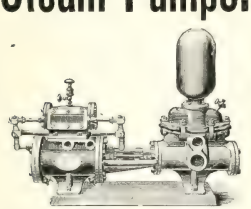

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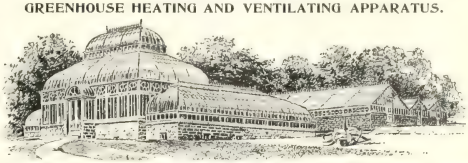

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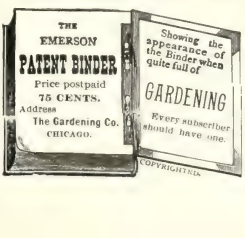

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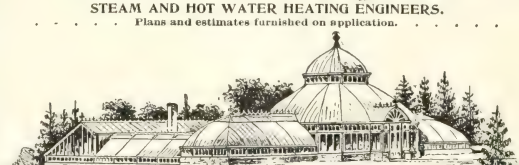

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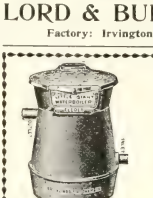

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NATURAL SCENERY: A VIEW OF THE GENESEE RIVER IN SENECA PARK, ROCHESTER, N. Y.

Landscape Gardening.

A VIEW IN SENECA PARK, ROCHESTER, N. Y.

The view of the Genesee River in Seneca Park herewith represented is a part of the gorge or canon extending from the lower falls, where the river is spanned by an iron bridge, to about four miles north of the city. The banks are beautifully wooded with white pine, hemlock, arbor vitæ, red cedar, American yew, shad, hornbeam, ironwood, flowering and alternate leaved dogwood, sumac, sassafras, white and black ash, yellow and black birch, all the native maples, including the striped and mountain maple, white and red elms, tulip, beech, red, white, black and chestnut oaks, hickory, butternut, walnut, chestnut, basswood, black, red and choke cherry, mountain ash, tupelo, aspens of two species, and cottonwood, which, including shrubs, comprise one hundred and twenty species.

The banks are about one hundred and sixty feet high. The width of the river at the water's edge is about four hundred feet, and the distance across the chasm from the top of the high banks is about nine hundred feet. From early in the spring, when the river banks are white with the blossoms of the shad tree, until the frosts of early October paint the trees with gorgeous colors, the view is grand beyond description.

The park commissioners of the city of Rochester, by the advice of their landscape architect, Frederick Law Olmsted, have secured two and one half miles of the bank on the east side of the river, extending from the bridge across the river from the lower falls northerly, and have secured, or will secure, about seven thousand eight hundred feet on the west side of the river. The remaining five thousand five hundred feet have long since been secured by Bishop McQuaid for St. Bernard's Seminary and the Holy Sepulchre Cemetery, and by the Riverside Cemetery. The sloping banks in the rear of these institutions will be forever preserved at no expense to the city. Since the wooded banks have come into possession of the park commissioners they have been improved by removing all old dead trees, and in some places cutting out many of the inferior trees, and opening views from various prominent points on the river banks. It is the inten-

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Trees and Shrubs.

RHODODENDRONS.

About a month ago we unfastened the surface of the rhododendron beds hardly an inch deep with a fork, to more readily catch water and admit it and air; and during the last fortnight we have mulched them a foot deep with oak leaves, scattering a little sedge over the leaves to keep them from blowing away. In open lawns in rigorous localities a shelter of evergreen branches should also be given them. In such beds insert a stout stake about two feet above ground to mark the place of all lily clumps, so that in spring the leaves over these clumps may be pushed aside to allow the stems to come up without being bleached. *L. superbum* seems to push its way up through any ordinary thickness of mulching.

HARDY AZALEAS.

We treat them in much the same way as rhododendrons. The small bindweed (*Convolvulus arvensis*) has got into our large azalea bed, and is proving a most pernicious pest. To get rid of it is almost impossible, but we keep it in check by having it persistently pulled out. Mulching the ground encourages and preserves it, but even at this price we have got to mulch for the benefit of the azaleas. We are going to make

A NEW AZALEA BED.

We used to have a large mass of white day lilies (*Funkia*) and irises in a nicely sheltered, faintly shaded spot, which we have long looked upon as an ideal spot for azaleas. We are going to remove its present occupants, the day lilies, to a bed in a moist spot in the edge of an oak grove, and the irises to the open borders. We shall then unfasten the earth in the bed two spades deep and add about six inches deep of cleanings of an old woodside pond, and which have been stacked for a couple of years, and two inches at the surface of old leaf soil from our compost heap. The bed will then be filled with new Japanese azaleas, belted behind with kalmia, and interspersed with lilies.

TREES AND SHRUBS.

This is what we are doing now: Planting operations have stopped for a season. In the shelter belts where the Austrian, Scotch, white, and red pines, and Norway and white spruces were getting rather too thick we cut out those that could best be spared, digging them out at the root every time, and lopped off the branches so that we might the more conveniently get them carted away, and use them for

SHELTER WINDBREAKS.—We use these to protect somewhat tender trees like English yew, deodar, and cunninghamia, and groups of the finer and rarer evergreens, placing it on the north and west sides of them. Before the ground freezes up, say in the middle of November, we drive in some posts as for a fence, then take light rails or trimmed saplings from the wood and tie two rows of these to the posts, like a two-barred fence. We use old wire for tying, the wire we cut off baled hay and baled German peat moss. Against this fence we place the evergreen branches, tying them in place with another strip of railing outside of them. We also lay evergreen branches over beds of pansies, and over dwarf evergreens to shelter them from wind and sunshine in winter and hold the snow about them; fir or spruce branches are also good things to hold leaves in place when they are used as a mulching.

ROUGH PRUNING.—Among the evergreens in the shelter belts a good many of the inner branches are sure to die out, also, where two trees have crowded each other, and one is removed, the branches of the other that had grown up against the removed tree are apt to be disfigured or dead. Now, any inexperienced laborer, handy with a saw, can prune out the dead wood in these trees as well as an expert, and it is good work for them in bright, dry frosty weather.

DEAD TREES.—In groves of old trees some are sure to die out, or be so near dead as to give an ill look to the place. Now is the time—before the frost penetrates too deep—to get them out. If the tree stands out alone, dig it out at the root before you touch the top of it, for the weight of the top in falling will pry out the big butt end clean out of the hole and in this way save you much labor. But if the dead trees are situated in a plantation or grove where the falling tree would be likely to hurt any others, get a ladder, rope and sharp saw, and climb up into the tree and saw off all branches that should be removed before the tree is felled; but first throw the rope over the next higher branch, then fasten it, pretty well out on to the branch you are going to saw off, fastening the loose end to the stem of the tree or throwing it to another man standing on the ground. By this means the branch, when cut, can be let down gently and without hurting anything; whereas, when cut, if it should be allowed to fall down with a crash, it would smash everything underneath it.

CUT UP THE WOOD ON THE SPOT.—Oak, hickory, chestnut, cherry, and such woods, if not required for any other purpose than firewood, had better be sawed up into suitable lengths, say 18 to 30 inches, before it is carted away; it lightens work. This sort of firewood is much used for open fireplaces in spring and late summer or fall.

FILL UP THE HOLES as soon as you dig out the trees, keeping the yellow, or subsoil in the bottom as before, and treading the ground firmly as it is filled in, all the way from the bottom up.

THE ENGLISH HOLLY.

The English holly (*Ilex Aquifolium*), of which I send you the photograph, is a beautiful specimen growing near the Mausoleum in the Drexel lot, Woodlands cemetery, Philadelphia. It is almost spineless and closely approaches one which the French nurseries sell as *laurifolia*. Mr. J. D. Lankenau, president of the German Hospital, who gave me the photograph and the history of the tree for you, tells me that he obtained the plant thirty years ago from the late Robert Buist. It was taken from the pot it occupied and planted at once where it now stands, and in all those years it has not been injured by cold at all. It is in an angle at the southeast corner of the Mausoleum, and is fourteen feet in height and ten feet through. I know of no other large plants of this variety, nor do I know of a better English holly of any sort hereabouts. The Drexel lot stands on an elevation in the cemetery, and the soil is very well drained. Within a stone's throw almost is the Schuylkill river, which tempers the air in winter. Though the English holly may be considered hardy in Philadelphia, there is no doubt that many favorable circumstances combined to permit of the beautiful growth of this specimen. In the cemetery not far from this holly stands a *Magnolia grandiflora*, which I think is fully twenty-five feet high.

I have great faith in the ability of what are deemed partly tender trees and shrubs, such as the holly and magnolia mentioned, to stand cold better when they have made growth enough that their roots are well below the frost line. As a matter of fact, plants go unprotected here after this occurs. Up till then they are mulched with forest leaves and evergreen boughs or cornstalks placed over their branches to keep the light out and break the wind. When the plants get of a good size and become bushy they do for themselves what we do for them when young. Their branches are numerous and leaves abundant, and one screens and shelters the others, the outside foliage only suffers. JOS. MEEHAN.

Philadelphia.

The Flower Garden.

THE YELLOW COSMOS.

Knowing that with GARDENING the good and bad of plants are equally made known, I wish to write as to the "New yellow cosmos."

From experience with it I unhesitatingly pronounce it the most worthless flower to which the attention of growers was ever called. It has not one point of attraction, beauty or commendation, but in shape and color of bloom is inferior to any other garden flower I know of; in fact, it is as unattractive as any yellow-blooming weed we have. The plant and foliage are equally uninteresting and without one attractive feature.

I got the seeds from Haage & Schmidt. The plant grew only 1½ to 2 feet high, and its foliage didn't in the least resemble that of the cosmos we have been growing. The seeds were peculiar too, in that when ripe, when you undertook to gather them they stuck in the fingers like fine spines of prickly pear, only the points were coarser and hurt worse. A. W. SMITH,

Americus, Ga.

The plant Mr. Smith has grown and which has been so ill-favored, is not the yellow cosmos at all, but a yellow weed technically called *Bidens ferrulæfolia*, and nearly related to beggar-ticks, an uncouth and common weed in field, wayside and swamp. The following two letters will throw some light upon the subject. We may also say that Mr. Oliver has sent us flowers and leaves of both plants from the U. S. Botanical Gardens, at Washington, to show us how decidedly different they are.

There has been some confusion as to *Cosmos sulphureus*, which, however, is easily explained. N. Correvon, of Geneva, sent out in 1894 a collection of New Zealand seed, among which were some supposed to be those of *C. sulphureus*, Cav. They were grown in my garden that year

THE ENGLISH HOLLY.

and the surplus seedlings having been given to a friend in the trade, the plant was distributed this season as a novelty, without suspicion of identity. Seeds were also offered this year by W. Thompson, of Ipswich, England, who is of course an expert plantsman, and the identity of the plants seem to have excited no suspicion.

Visiting a friend late in July or early in August last, I was very much surprised to find what he enthusiastically claimed as yellow cosmos, well in flower, on plants about four feet high. Seeds of these he had secured from some obscure southern dealer. To settle the confusion I sent the two plants to the Gray Herbarium of Howard University, where they kindly determined my plant as *Bidens ferrulæfolia* and the other as *Cosmos sulphureus Cavanilles*. The growers who have the prostrate plant with golden yellow flowers with five lancelike pointed petals, may with safety label it *Bidens*. The true *C sulphureus* is a tall much branched plant with yellow or orange flowers, in size and form like *C. bipinnatus*, but the leaves are not as finely cut. J. N. GERARD.

Elizabeth, N. J.

An English nurseryman says he g t the seeds which he sent out last year from St. Petersburg as *C. sulphureus*, but Sir J. D. Hooker says it is *Bidens humilis*. Prof. Holm, of the Department of Agriculture, Washington, identified the piece I send y u (and which Thompson sent us) as *Bidens ferrulæfolia*, and I believe this is what it has also been identified as at the Harvard University Herbarium. But the figure of this in the Botanical Magazine does not agree with it in the ray florets. The piece of the true *Cosmos sulphureus* I send you is from the Department of Agriculture, they got it from Mexico last year, and it only flowered this season about two weeks ago, and about the same time last year.

G. W. OLIVER.

U. S. Botanical Garden, Washington, D. C., Nov. 18.

CANNAS.

The killing frosts have closed a season for these magnificent plants which in this vicinity at least has been an exceptionally favorable one. Climatic conditions seemed to suit them, and where water was obtainable so as to be freely applied—for cannas are hard drinkers—they have grown with great vigor, so that many kinds which have heretofore masqueraded as dwarfs appeared to have joined the "upper classes." This suggests the query whether cannas of the new and desirable sorts extensively propagated and grown under glass, do not appear at their worst when first put out for general outside growing. For two years that grand canna Charles Henderson did so poorly with me that it was with some misgiving I saved enough of it to plant a clump of about twelve to fifteen plants, which have this season grown to an average height of five feet, have been a mass of bloom all summer, the admiration of all who have seen them and not surpassed by any other self colored crimson variety known to me.

Mr. Cowles' beautiful canna Mrs. Fairman Rogers seems to be undergoing a like process. At some of the Mass. Hort. exhibitions it has been shown in grand form, but the inference is that it may have been grown indoors; for as I have observed it this summer on the grounds of of my neighbors, Messr. James Farquhar, Denys Zirngiebel, and Arthur Fewkes, all skillful florists, and on my own place in a smaller way, it has been disappointing. Just before the frost there came in flower two spikes on one of my plants which were simply perfection, and as the plants have made a vigorous growth and fine clumps I expect and believe, it will behave next season as Chas. Henderson has this. If any of your readers who grow cannas have observed traces of this climatizing and hardening process it would be pleasant to hear from them.

The observations of the season just closed lead to the conclusion that many of the later sorts are doubtful improvements over some of the well approved old ones. Of the multitude of yellow bordered crimsons it would be difficult to name one superior to Mme. Crozy, when perfect habit, vigor of growth and floriferousness are considered. A few have more width of border, and of these Souvenir d' Antoine Crozy and Queen Charlotte appear to be the best, and are both beautiful cannas. A dwarf seedling of this type called Fairy Queen raised by Antoine Wintzer of West Grove, Pa., has done well with me and is worthy of another season's trial. Mr. Wintzer's Aurora, Queen Charlotte 2nd and Golden Gem, are all fine, the latter nearly a pure yellow of good form and substance and almost indistinguishable from Mr. Westwood's "Florence Barker" which latter canna received a first-class certificate from the Mass. Hort. Society.

Of the older sorts, Florence Vaughan, yellow, spotted red, Paul Marquant, salmon tinted carmine, Charles Henderson, dark crimson, J. D. Cabos, dark foliage, apricot colored flowers, President Carnot, pinkish shade of scarlet, perhaps the best of the dark foliaged sorts. Alphonse Bouvier, glowing crimson, are all grand cannas of vigorous and healthy habit, and perhaps as good as any of their later rivals. Of those sent out this season that I have had the opportunity to observe, Columbia, F. R. Pierson, Chicago, Eldorado or Mme. Montefiore, the two being with me indistinguishable, are grand flowers and of the approved type.

Some of the newer sorts not yet disseminated to any extent, are Mme. Bouvier, apparently an improved Queen Charlotte, Midway, of the type of Paul Marquant, but better; J. W. Elliott, a beautiful large flower of orange scarlet veined and shaded pink; P. J. Berckmans, deep pink shaded carmine, large flower, distinct and beautiful, a decided acquisition; Mrs. F. L. Ames, of the type of J. W. Elliott, with lower petal more distinctly marked yel low, a splendid flower, and a beautifu dwarf yellow, spotted red, of the Eldo rado type but quite dwarf in habit an large flowered. This is rightly name

Sunbeam and is I think of New Jersey origin. These new cannas have been beautifully grown this summer on the grounds of my neighbor Mr. Denys Zirngiebel, and if they fulfil the promise of this season bid fair to make some of their elder kindred "hide their diminished heads." Mr. James Farquhar has several seedlings of great merit. Mr. Fewkes's Mrs. W. H. Cowing, seemingly a bit shy in flowering and not a vigorous grower out doors, is a lovely window plant, very dwarf and constantly in flower. In an 8-inch pot it makes a plant about two feet high of three to five stalks, and given a sunny window is a beautiful object throughout the winter. Of late years seedling cannas have come forward in swarms both here and abroad and great advances have been made. Doubtless new surprises await us at the hands of our own countrymen. Up to date however, while we may be permitted to crow over the results of a few athletic contests and in a mitigated way a yacht race, we shall have to admit that in the way of novelties in cannas, the honors rest with M. Crozy. W. H. C.

West Roxbury, October 12.

LILIES—AMPELOPSIS—HONEYSUCKLE.

J. P. T., Mingo, W. Va., asks about LILIUM AURATUM.—"I have some bulbs which were unluckily eaten off last summer just as they were coming into bloom. They seemed however to have very few flower buds, so I doubt if they were a good kind. Are they likely to have made fresh bulbs, and would it be worth while resetting them and depending on them to flower next year?"

Ans. It is hard to tell. Lift one or two of them and if they are sound let the others alone, but if diseased or rotting, lift all of them, wash or pare the bad parts away, and keep the bulbs in a box of moist sand out of doors under a big heap of leaves or hay till early spring, when they should be planted out again. In this case expect very few flowers from them. You had better plant a few fresh bulbs.

JAPANESE IVY (*Ampelopsis Veitchii*). I set out a plant in the garden, against the chimney, nailing the vines to the wall, but they withered. Should the roots be protected over winter?"

Ans. While protection isn't necessary maybe it is a safeguard, and can do no harm. A wreath of oak tree leaves with a little rough stuff strewn over them to keep them in place will answer very well.

HALL'S HONEYSUCKLE. "Will it need winter protection? It seems to me better to risk its surviving because, of course it cannot be protected when it becomes a large plant."

Ans. It should be perfectly hardy with you. At the same time an armful of oak leaves laid over its roots in winter does it good. There are lots of plants barely reliably hardy when young, that are, after a few years, and when their roots penetrate deep into the ground, quite hardy.

A PRETTY ANNUAL VINE.

(*Thunbergia alata*).

The border along my porch is heavily planted with akebia and various forms of clematis. When first planted and for a few years after I grew ageratum, *Zinnia Haageana*, etc., at the base, but when the vines became strong I noticed that the plants set directly over the roots of the akebia were stunted, causing an unpleasant uneven growth. This year I planted *Thunbergia alata*, an interesting annual twiner from South Africa and a happier selection could not be made. It was planted between the akebia roots and in addition to forming a charming mat all over the ground, it climbed up among the hardy vines, blooming inside and outside the porch in a most bewitching manner. Sitting on the porch and having thousands of black-eyed trumpets looking at one was a sensation I never enjoyed before. At this writing (October 7) the flowers on the outer face of the net-work of vines are dwarfed by the cold nights, but those looking in being somewhat protected, are still of good size. This thunbergia should be started in a hotbed, window or greenhouse in spring to get it early enough. W. C. EGAN.

Highland Park, Ill.

CLEMATIS PANICULATA SEED.—It is time to gather it. It may be sown in boxes (seed flats) now and these laid in a cold frame over winter and covered with some leaves or litter and shutters to keep the frost from heaving the seed out of the ground; or you may sow the seed directly in the frame. In either case the seeds are apt to germinate about or before July. Frost won't hurt them. Or you may keep them till early spring and sow them then. In fact, where the seeds fall to the ground from the vines, if at all moist and a little shaded from warm sunshine, they are apt to grow in quantity. Second year old seedlings, if well treated, blossom, and of course they increase in size, strength and floriferousness each succeeding year. No one having a garden should be without this vine.

HARDY VINES AS CUT FLOWERS.—When there is a reception party or wedding here at this season I can send over long sprays of clematis with laterals unbroken and not tangled because I grow them on a string. I also grow the cinnamon vine as you grow *Asparagus plumosus*, and I also grow Lobb's nasturtium on a mound, training the shoots in radiating lines away from each other, and when wanted I can cut long pieces in splendid form for decoration. W.

Chrysanthemums.

DISPLAY OF CHRYSANTHEMUMS IN THE PARKS AT ALBANY, N. Y.

I have not tried to give a display of enormous blooms or monstrosities in single or specimen flowers; I have attempted with some success, to collect such a number and variety of plants as would give a fair representation of the chrysanthemum family. Those most interested and posted in chrysanthemums as amateurs, have a decided preference for well grown, bushy plants, holding many blooms of moderate size, and I think commercial growers will find that as the taste or love for these plants becomes more general, that except in a few individual instances the demand for the future will be for small, stocky, well grown plants furnished with good foliage and abundant bloom; and small single flowers of the anemone type will be preferred to the stiff, rigid flowers recently exhibited in New York in vases.

My endeavor in Albany has been not to glorify myself, but to cultivate a taste for the beautiful in flowers and foliage. My taste is for the quiet, restful arrangement of border planting, and for harmony in color and not glaring or striking effects. Much of this effect is secured by foliage plants and not with flowers.

I give annually a mid-summer exhibit in the Lake House of Washington Park, of crotons, caladiums, and assorted or selected bench plants in addition to the fall exhibit of chrysanthemums. It seems to me it is the province of every park department or executive officer to provide the public with such exhibits. The effect is to interest the public in the efforts made in their behalf, and to refine and educate the masses to a proper appreciation of the beautiful in nature. The more interested the public become, the less occasion have the authorities to find fault with the many trespasses usually committed upon turf, leaf and flower.

Of course all the leading varieties are grown here; if they stand the test of our system of cultivation and exhibition they are retained, if not, after a year's trial they are discarded. Tall, naked stemmed sorts, or ones specially subject to mildew, or such as need special cultivation to have them produce creditable blossoms we do not care for; we want good health, good habit, and clean, abundant and vigorous foliage, as well as beautiful, clear, distinct, and lasting flowers in our plants. In addition to the named varieties we grow a large number of plants from seed, and some of them are very pretty. In arranging the exhibitions these seedlings are kept apart from the other kinds.

The exhibition lasted from Nov. 4 to 18, opening at 9 a. m. and remaining open till 10 p. m. and it was free to all.

The propagation and cultivation of the plants were under the immediate direction of Mr. Charles Sanders, the head gardener here, and the comments on the following varieties are by him.

NEW VARIETIES SENT OUT IN 1895.

The varieties are included under the headings of the florists who raised or disseminated them.

Thos. H. Spaulding. Mrs. M. R. Parker, Jr., rich deep pink, early; Edith Smith, white, early; Helen Bloodgood, true clear pink; Mrs. Higinbotham, rich bright pink, medium season; Miss Georgia Compton, deep golden yellow, late, and Mrs. J. H. White, rich crimson, late. The above are all good varieties and so too are the following, but with me they are quite late: Miss Gladys Spaulding, white, grand; Autumn Leaves, white, red and yellow; Octoroon, ox blood red; and Brigand, deep crimson. The pea green, Ethel Amsden, is odd but not beautiful.

Graham. Philadelphia, white, good and Katherine Leech, pure self pink, very good.

Pitcher & Manda. J. H. Troy, white; J. E. Lager, early, yellow; W. B. Dinsmore, golden yellow, and F. S. Atkins, pearly white, are all good.

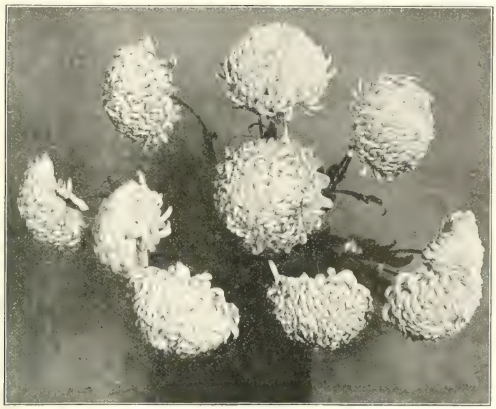
J. N. May. Sunrise, red, early, very good; Dean Hole, white, good; and Trilby, clear white, but too small.

Hill & Co. Miss M. M. Johnson, yellow, early, good, and The Egyptian, large, red, but dull color.

GENERAL COLLECTION OF VARIETIES.

We are adding to and dropping from this list every year.

Very good this year. W. H. Lincoln, yellow; Mrs. J. B. Crane, deep rose; Maud Dean, fine pink; Marie Louise, white, large, early; Princess of Chrysanthemums, delicate pink, very large; Christa Bell, apricot yellow; Clinton Chalfant, golden yellow; Pitcher & Manda, yellow and white; The Livingstone, Indian red; Vivand-Morel, pink,



NEW CHRYSANTHEMUM MRS W C EGAN.

Constellation, grand pink; Mrs. G. A. Magee, silvery pink; Mrs. G. M. Pullman, golden yellow, very large; Miss Florence Pullman, white; Minerva, yellow, one of the best; Mrs. George West, rose purple; Mrs. W. R. Merrian, soft pink; Mayflower, white, long keeping; Mrs. Jerome Jones, white, late; Niveus, white, ivory white; Adele Merz, deep rose; George W. Childs, velvety crimson.

Good. Mr. Hicks Arnold, old gold; Mr. A. G. Ramsey, Indian red; Mrs. E. D. Adams, white; Mrs. John Ayeman, rose pink; Miss Annie Manda, white, hairy; Christopher Columbus, dark crimson, early; Beauty of California, light pink, early; Partridge, terra cotta; Baron Hirsch, crimson bronze, early; Dorothy Toler, rose tipped red; L'Enfant des Deux Mondes, white, hairy; Georgienne Bramhall, primrose yellow, early; J. M. Kupper, bronze, early; Lillian Russel, silvery pink; Louis Boehmer, deep pink; Mrs. James Eadie, silvery pink, late; Pelican, white; R. M. Grey, terra cotta, hairy; Thomas H. Brown, pink, large; Silver Cloud, white and salmon, W. C. Cook, yellow; Lillian B. Bird, shrimp pink; Eda Prass, salmon; Ada Spaulding, pink, Mrs. G. H. Morgan, yellow; Miss E. T. Hulst, pink, early; Mutual Friend, white.

Very late this year. Harry May, old gold; Mrs. W. S. Kimball, creamy white; Achilles, pink changing to white; Beau Ideal, rose pink; Heron's Plume, white; John Rossiter, yellow; Shenandoah, chestnut brown; The Queen, white, and Challenge, golden yellow.

Other Varieties. Mrs. J. Hood Wright, white, has run out; Edwin Molyneux, chestnut crimson, is no good here; A. H. Fewkes, rich yellow, is poor this year; C. Shrimpton, bright crimson, is fair; Eiderdown, snow white, isn't much good; E. Dailledouze, yellow, is good when it does well; Inter Ocean, pearly white, isn't so good this year; Great Republic, bronze, is fair; Kioto, yellow, isn't much good; Lady Playfair, pearl pink, is fair; Mrs. W. H. Trotter, is hard to make a good plant of; Cesare Costa, is a fairly good dark red; Lady Florence, rich yellow, has done badly; La France, pink, is out of date; Mrs. C. Lanier, soft rose, isn't very good this year; Mrs. H. McK. Twombly, white; Mrs. Cornelius Vanderbilt, rose madder, Mrs. J. Brown, rose pink, and Mrs. J. G. Whilldin, yellow, are only fairly good this season; Mrs. Alpheus Hardy, white, is a good hairy flower, but the plant is a poor grower.

No good. Esther Cleveland, deep rose, Bonnie Marjorie, primrose yellow; Miss G. H. Bates, clear yellow; Mrs. J. Dallas, rich apricot; Robert Owen, yellow; Shasta, white, and Wanlass, light pink.

WM. S. EGERTON,
Landscape Architect and Superintendent of Parks.
Albany, N. Y., Nov. 15, 1895.

CHRYSANTHEMUMS OUT OF DOORS.

My crysanthemums have been very late this season. Though I have three "September flowering" ones, they did not come into blossom till late in October. Over a dozen "early October flowering" ones were much behind this time. My chrysanthemums are all in the open ground, and I am not at all disturbed, as so many of your subscribers seem to be, by the fact that the greenhouse flowers are so much finer. Grown out of doors they are so much finer than almost any other flower, and at the same time so little trouble—as c mpared with roses, for instance, or bulbs—that I am more than satisfied with them. Mine have always had the black aphis until this year, when I followed GARDENING's suggestion of severe hosing, and then there was not a single insect on my plants. I cover them with a light mulch of stable manure and hay during the winter, but I presume they would be perfectly hardy without that protection. How far north will they live out of doors? X.

South Jersey.

The pompon and Chinese varie ies, if established plants and planted in sheltered, well drained gardens, may be grown out of doors as far north as Boston, but their bloom is uncertain, early fall frosts often destroying them before they open. The Japanese sorts as a rule are tender; at the same time, under a mulching, many of them will live over winter on Long Island. But hardiness is one of the qualities our florists ignore in raising new chrysanthemums.

CHRYSANTHEMUM MRS. W. C. EGAN.

This is a new variety raised by F. Dorner & Son, Lafayette, Ind., and named in compliment to the lady of Egandale. The flower is very large, measuring 10½ inches over the top, of the Ada Spaulding build. "The color," the raisers tell us, is "crimson pink at the base, shading at the apex to pale sulphur, suffused with strawy buff on the outside of petals." The plant is of medium height, and sturdy growth, and has fine foliage, and it is an early blooming variety, the first flowers were cut from it this year Oct. 28. It has been exhibited at Chicago and Cincinnati and was awarded a first-class certificate at each place; at Chicago it also captured the silver plate prize offered for the best seedling in the tested classes.

CHRYSANTHEMUMS FOR CUT FLOWERS.

Mr. E. Asmus, of West Hoboken, N. J., is one of the most extensive chrysanthemum growers for market in the country, and one of the best. Any one who leads, as he does, in the New York market, must necessarily produce as fine flowers as the art of man can grow; more than than that, his varieties must be the best—bold, distinct, full headed, stiff stemmed, and well supplied with healthy foliage, and the colors must be clean, clear, attractive, and beautiful. Further, the flowers must be of such substantial character as to submit to being packed in baskets or boxes, carried into New York, there unpacked and displayed for sale, packed again and unpacked and set up in the florist's store, without any apparent injury. Only such kinds that will stand this will pay the market growers to cultivate, and such kinds are as emphatically good for the amateur as for the florist. Under date of Nov. 19, and while his greenhouses are teeming with magnificent flowers, Mr. Asmus kindly prepares and sends us the following list:

The following varieties of chrysanthemums are, in my opinion, the best for cut flower purposes:

EARLY VARIETIES.

White.—Mme. F. Bergmann, Mrs. H. Robinson.

Yellow.—Marion Henderson, J. E. Lager, Miss M. M. Johnson.

Pink.—Nemesis.

Dark.—Sunrise.

MIDSEASON.

White.—Niveus, Queen, Silver Cloud.

Yellow.—H. L. Sunderbruch, Major Bonnaffon, E. Dailledouze, W. H. Lincoln.

Pink.—Helen Bloodgood, Maud Dean, W. N. Rudd, Zulinda.

LATE.

White.—Mrs. Jerome Jones, Flora Hill.

Pink.—Erminilda.

Yellow.—H. W. Rieman, Challenge, Dr. Covert. E. ASMUS.

CHRYSANTHEMUMS—POT PLANTS.

We grow a large variety of chrysanthemums in pots for home and greenhouse decoration. Such plants must be of sturdy, stocky habit, with stout, stiff flower stems, and an abundance of clean, substantial foliage all the way up; but

much of all of this depends upon the treatment and attention given the plants by the grower. The flowers must be clean, clear and of good size, form, substance and duration, and such as open perfect and have a pleasing effect. The following varieties I can recommend from experience. They have fine flowers, fine foliage, and good habit, and we can have them in small, medium, or specimen-sized plants as we wish, and if we want to cut them they are excellent for cut flowers:

Ivory, white, dwarf.
H. L. Sunderbruch, yellow.
Clinton Chalfant, golden yellow.
Joseph H. White, creamy white.
Puritan, white, flushed lilac.
Portia, delicate pink.
L. Canning, creamy white.
Inter-Ocean, white.
George William Childs, crimson.
A. H. Fewkes, yellow.
Domination, white.
Ada Spaulding, light pink.
Louis Boehmer, pink-purple, hairy.
Superbiflora, carmine-rose and white.
Vernal Fall, pink.
Theo, white.
Louis Menand, brown and gold.
J. Shrimpton, red.
Etoile de Lyon, white, striped purple.
Major Bonnaffon, yellow.
Wm. H. Lincoln, yellow.
Iora, light pink, tubular.
Octave Mirabeau
Georgienne Bramhall, yellow.
Primula, primrose.
Columbine, red, reverse of petals, bronze. This is a new variety not yet on the market, but it will be next spring. Specimen plants of it grown by Mr. Hatfield, my neighbor, have been fine. Under electric light it was the prettiest variety at the Boston show. But it is of no use for large flowers. Georgiana Pitcher promises to be one of the best yellows.

JAMES WHEELER.

Brookline, Mass.

CHRYSANTHEMUM GRETCHEN BUETTNER.

This variety, which figures in the present issue, is a magnificent loosely built white Japanese, which received certificate offered for the most distinctive white seedling at the recent Chicago show. It originated with Mr. E. Buettner, Park Ridge, Ill., and caused a marked sensation when on exhibition. Its size and purity of color, combined with its irregular grace of form, make it one of the notable accessions of the present season.

Roses.

ROSES.

X, South New Jersey, asks: "Do I need to protect for the winter any of the following roses? They were selected carefully by a comparison of many lists in GARDENING, and were planted in deep rich soil according to the directions given. I lost a number of roses last winter by protecting them with leaves, under which they decayed, and am anxious to avoid the loss this year. Our climate is very warm and open, with almost no snow, and the thermometer seldom down to zero, except in unusual winters like that of '93-'94, when evergreen euonymous ten and fifteen feet tall were cut to the ground. I divide the list of roses into three sections.

1. "Roses that have been in their places a year and a half. Hermosa, Cramoisi Superieur; Duchesse de Thuringe, very thrifty; Virginia and Rubens, Tea roses, rather less so; and Marie Drivon and Reine Marie Henriette, climbers which have never climbed at all or blossomed. They have grown a very little and are each about a foot tall."

Ans.—Cover all of these. Lay them down flat on the ground with the branches close together and pointing one way and place a few inches deep of earth on top of them; or better still have some sods cut and place these one deep and grass side down on top of the roses in place of the loose earth, as recommended in GARDENING before now.

2. "Roses that were set out in the spring of this year blossomed well, and are big and healthy. Gen. Jacqueminot, Paul Neyron, Mrs. John Laing, Clothilde Soupert, Mme. G. Bruant, La France, Malmaison, Persian Yellow, Crimson Rambler."

Ans.—All of these should be perfectly hardy with you. It may be safer however to mulch about, or cover with a sod La France, Malmaison, and if it be small Crimson Rambler too.

3. "Roses just bought, in their places since the 16th October and only from 4 to 6 inches high. American Beauty, Prince Camille de Rohan, Magna Charta, Anne de Diesbach, Mrs. Paul, Duchess of Albany, Alfred Colomb, Gloire de Margottin, Ulrich Brunner, Mme. Chas. Wood, Mrs. Degraw, Mme. Schwaller, Coquette des Blanches, Sweetbrier, Climbing La France, Dawson Rose, Wichuraiana. (*a*) As the roses have been planted perfectly erect, it would be sufficient to protect them with earth as is so often suggested in GARDENING, without breaking them. I intend mulching them all for the winter with a well decayed compost (*b*) of cow manure and oak leaves if you consider it advisable. This I thought of forking in in the spring, and then mulching them with wood ashes, as suggested by one of your subscribers as a preventive of mildew. Can you recommend this last procedure (*c*) from your own experience? How thick would it be (*d*) safe to make the mulch? Are not ashes rather (*e*) dangerous to use?"

Ans.—Roses four to six inches high are altogether too small to plant out of doors in the fall, for the frosts of winter are apt to heave them partly out of the ground; but such small plants set out in spring would grow all right. So far as hardiness goes all except Mrs. Paul, Duchess of Albany, Mme. Schwaller, and climbing La France should be perfectly hardy with you; rather than risk such little plants as these out of doors we would lift and plant them in a box, filled with ordinary moist earth, and keep them in a light but cool cellar or window over winter and plant them out of doors again in spring. (*a*) Yes, you may draw the earth up against them, or better still place a spadeful of earth about them, taking it from somewhere else so as not to make a hole in the bed. (*b*) Quite good, but if the manure is wet or pasty don't let it come up against the stems of the roses. (*c*) No, we have not tried it, but we have no doubt that a top dressing of wood ashes is good for roses. (*d* and *e*) A top dressing consists of a sprinkling broadcast over the bed say a half-inch deep, then there is no danger, but keep it away from the necks of the plants.

ROSE BUGS, WILL DROUTH KILL THEM? A subscriber in Rockingham County, Va., writes under date of October 25: "We are having a fearful drought, not one spear of chickweed to be seen, only think of it, but it will come with rain, there is no hope of killing it. I do hope it may kill the rose bugs. I remember one dry fall and winter when the rose bugs were a week later coming the next season, and very few of them.

Greenhouse and Window.

GREENHOUSE NOTES.

Amaryllis Aulica, and Empress of India, and other hybrids are now coming into bloom with us. We give these plants a partial rest all the summer, but they retain their foliage. When we bring them into the greenhouse in September we gradually increase the supply of water and the temperature, and give an occasional watering of liquid manure. *A. Johnsoni* blooms with us about May. It is decidedly deciduous. After it is done blooming we allow it to gradually dry off. We have one specimen that produces every year from 50 to 60 spikes. Cyclamen are now coming into bloom. Place them as near the glass as you can. The earliest potted batch of freesias, if their pots are well filled with roots, may be brought into a warm house, placing them upon a shelf near the glass, to hurry them on. Cinerarias and calceolarias need attention in the way of re-potting, and keeping them clean from green-fly by careful fumigating—they are very sensitive to tobacco smoke. Keep fresh tobacco stems on the hot water pipes. The temperature must not be allowed to rise too high, especially by fire heat; the more cold-frame-like the house is kept the better. Give the plants plenty of room.

Oxalis Bowiei, rose, *cernua*, yellow, *versicolor*, crimson and white and pale yellow, *purpurea* and *alba* are coming into flower in suspended pots and baskets. *Lobelia Erinus* makes a fine decorative plant for the cool greenhouse or window garden. *Nasturtiums* (*Tropæolum*) come in very useful for cutting, and last well. Re-pot any geraniums needed for winter-flowering. This is the time we put in leaf cutting of Rex Begonias.

WM. FITZWILLIAM

SOME OF MY WINTER BLOOMING WINDOW PLANTS.

One of the best plants for the window garden is

PLUMBAGO COCCINEA.—It is a reliable and persistant bloomer. The first buds appear in late October or early November and the pretty rose colored flowers help to brighten many a gloomy winter day. It is a very patient plant, willing to take a back seat, not seeming to require the brightest sun, but it likes a warm place, indeed, that seems the only condition it insists upon. Sometimes on a cool morning I have found my plant, with leaves drooping and looking in a most disconsolate manner, but as soon as the room is light, warm and cheery, it recovers itself and no harm is done. Mine has never been troubled with insects of any kind, nor does it drop its lower leaves, as some plants will. These are two good qualities in house plants for amateurs. [This plumbago is an East Indian plant. See illustration of it in GARDENING, VOL. 1, March 1, 1893.—ED.] A plant of

CHOROZEMA VARIUM is at this writing loaded with buds. Seeing the plant listed as a winter bloomer I bought one last spring, knowing nothing of it; the care has been a sort of an experiment. As it grew it has been cut back, to give more

NEW WHITE CHRYSANTHEMUM GRETCHEN BUETTNER.

blooming stalks, and it has grown well all summer, until now it is a good sized plant in an 8-inch pot. The buds are at the end of every stem, and I am waiting for them to open,—if pretty (and what flower is not in winter?) it will be quite desirable, for it is of easy culture, its chief requirements being sun of course, a fair supply of water and a cool place. [This slender shrubby plant is a native of New Holland, and bears a profusion of small yellow and red pea flowers. Shear off all the old flower sprays after the plant has done blooming. It is propagated from seed.—ED.] A pretty sight in my window to-day is a plant of

EPIPHYLLUM TRUNCATUM. It stands on a bracket, and even those who dislike the "horrid things" cannot help admiring it, and it has almost countless buds and blossoms in all stages of growth, and it is a friend who never fails to reward me, for what little care I give it. I am very fond of

BEGONIAS and now have some twenty five varieties. Although they are my favorites I have not been as successful with them as with other plants, called more difficult of culture; however, they promise well now, *B. semperflorens gigantea rosea* is in bloom. The flower is lovely, and the plant in constant flower, but they persist in dropping their lower leaves and I notice they do this in florists' greenhouses. Begonia Vernon is a good plant, free in bloom, and with bright green foliage close to the soil Mine are potted in good garden soil and leafmold, with a little sand, and the pots are drained with charcoal and broken pots.

Connecticut. H. E. L.

NERINE—LYCORIS—SPIDER LILY.

G. C. P., Newark, N. Y., asks: "Are *Nerine Japonica*, *Lycoris radiata*, Guernsey lily and spider lily all different names for the same plant? Is it, or they, hardy here? Which one has yellow flowers?"

Ans. *Lycoris radiata* is the proper name of "*Nerine Japonica*." The Guernsey lily is *Nerine Sarniensis*. "Spider lily" is a name given in common to many species of *Crinum*. *Lycoris aurea* has yellow flowers. None of these plants is hardy at Dosoris, and that means in N. Y. In the South, however, they are hardy.

AZALEAS AS HOUSE PLANTS.

It is not during the winter months that azaleas are liable to suffer, for if they be put in a light window and given water when dry, they will behave all right. It is in the hot dry summer months that the danger lies in the keeping of the azalea as a house plant from year to year. But there is nothing difficult in growing azaleas from quite small plants entirely without the aid of a greenhouse. The single varieties are best for this purpose, as they grow more freely than the double ones, and I think look quite as pretty. When done blooming in the house, the old flowers should be carefully picked off, and if the plants need it, re-pot them into larger pots, using two parts leaf-soil and one composed of equal parts loam and sand, ram the soil firmly down between the roots and the sides of the new pot. Previous to this, however, see that the old ball of earth is moist all through, and that the drainage in the bottom of the pot is perfect. These are important details. About the beginning of May, put the plants out of doors in a slightly shaded place, plunging the pots in the soil so that the roots will be in a moist, cool place during the hot weather. In dry weather give water about every other day. This treatment should induce a healthy crop of leaves and by the end of summer the embryo flower buds for the next winter's flowers will be well formed. G. W. O.

STEPHANOTIS.

M. B. G., Iowa, writes: "I have had a had a stephanotis for a long time, but it never blossomed till this year. For about six weeks in last May and June it was loaded with seven or eight great creamy clusters, each containing seven or eight flowers as large as a single tuberose. This fall, however, it is not doing so well. The leaves, about two-thirds of them, have fallen off and many of them remaining are covered with spots like those on the leaf enclosed to you. What can I do for it?"

Ans. The leaf is spotted with a downy mildew. Wash the leaves with a sponge and soft soapy water, then dust them over with sulphur. This is a check or preventive, not a cure. We don't know what caused the sickness in your plant, but it is a very hard matter to recuperate a sick stephanotis. Bad drainage in the pot, probably caused by angle worms, and a sodden sour soil, will cause just such mischief. We would advise, cut back the soft, wilty vines a little, turn the plant out of the pot to see that the drainage is free, but otherwise don't break the ball of earth nor re-pot the plant just now, simply replace it unbroken in the pot. Then keep the earth only slightly moist, and in fine mornings dew the plant overhead. If after a time, say in early spring, the vines and leaves stiffen up, re-pot it, removing as much of the old soil as you can without injuring the roots, and use a comparatively small pot.

THE DOVE FLOWER.

K. G. H., Bridgewater, Va., writes: "Your Boston notes recall a conversation I had with a lady recently. She is a great traveler, and talking of flowers, remarked that she had never seen flowers more perfect and lovely than at the floral exhibition in Boston; one, she remarked, that was new to her, was the dove flower. What is it?"

Ans. Her estimate of the Boston plants is quite correct. The dove flower is *Peristeria elata*, a terrestrial orchid indigenous in Panama, and common in cultivation in greenhouses. It is a vigorous plant, throwing up tall flower spikes, 2 to 4 feet high, each bearing several white, fragrant, waxy blossoms, the central part of which has a strong resemblance to a white dove's head and opening wings. It is also called Holy Ghost flower. It is not suitable as a house plant.

LEMON OIL AS AN INSECTICIDE.—Some of our readers have before now asked us about this, but not having had personal experience with it we were unable to give them a satisfactory reply. The other day, however, we were at James Dean's greenhouse establishment, near Brooklyn, and found that he had been using it. To satisfy us he made up some of the insecticide and allowed us to dip some palms in it, and then he sent the palms to Dosoris, that we ourselves might know what effect the washing had on them. He poured two gallons of warm water (125°) into a wooden trough, and into this one pint of lemon oil, and stirred it up together a little; they unite at once. We then took the plants and dipped them, laying them on their sides a little because of the small quantity of mixture made up, and keeping them in the liquid five or six seconds. That finished the operation, they were then stood on the bench to dry. It was apparently instant death to scale and mealy bugs, and not the least injury to the plants was discernable. Mr. Dean showed us ferns, dracænas, ficus, and other plants that he had been dipping; in all cases the work of the insecticide seemed to be perfect, and in no instance was injury to the plant observed.

GARDENING

WILLIAM FALCONER, Editor.

PUBLISHED THE 1ST AND 15TH OF EACH MONTH

— BY —

THE GARDENING COMPANY,

Monon Building, CHICAGO.

Subscription Price, $2.00 a Year—24 Numbers. Advertising rates on application.

Entered at Chicago postoffice as second-class matter.

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All communications relating to subscriptions, advertisements and other business matters should be addressed to The Gardening Company, Monon Building, Chicago, and all matters pertaining to the editorial department of the paper should be addressed to the Editor of GARDENING, Glen Cove, N. Y.

GARDENING is gotten up for its readers and in their interest, and it behooves you, one and all, to make it interesting. If it does not exactly suit your case, please write and tell us what you want. It is our desire to help you.

ASK ANY QUESTIONS you please about plants, flowers, fruits, vegetables or other practical gardening matters. We will take pleasure in answering them.

SEND US NOTES of your experience in gardening in any line; tell us of your successes that others may be enlightened and encouraged, and of your failures, perhaps we can help you.

SEND US PHOTOGRAPHS OR SKETCHES of your flowers, gardens, greenhouses, fruits, vegetables, or horticultural appliances that we may have them engraved for GARDENING.

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GEORGE S. CONOVER CHRYSANTHEMUM.—On Wednesday, Nov. 13, we received a box of flowers of this chrysanthemum from Vick & Hill, of Rochester, N. Y. We at once placed them in a vase filled with water on a table in our sanctum, and there they are yet (Nov. 25), some of them, notwithstanding their 400 miles journey by express, are more perfect than they were on their arrival, and others only beginning to show a little the worse for wear. Every bloom stands erect on a stem as stiff as a poker. The flowers are 4½ inches in diameter, and full double, perfect globes of a clear, pure yellow color. They are splendid blossoms, and we are glad so good a flower has been selected to commemorate the name of so distinguished a gentleman as Mr. G. S. Conover, of Geneva.

THE HAIRY CHRYSANTHEMUMS are losing favor. We do not find as many of them in private gardens nor upon our exhibition tables as we did in the past four or five years. Still they are very beautiful.

CHRYSANTHEMUM PHILADELPHIA.—Notwithstanding all the honors conferred on this variety at home and abroad, we believe it is disappointing. Although a fine, full, big flower, it is neither white nor yellow. Perhaps extraordinary cultivation may improve its appearance, but as grown under ordinary care the buttery smeared tint of the petals in daylight is not attractive.

MRS. JOHN LAING ROSE is what we call a hardy remontant, or hardy perpetual rose. It is hardy, a good grower, and a free bloomer; its flowers are large, beautifully formed, soft pink in color, and quite fragrant. As late as the middle of November we have a scattering of blooms among our hardy roses, but of course they are inferior flowers. On Wednesday, the 20th ult., the night before the hard freeze, we gathered some blossoms of Mrs. John Laing that would be passably good for summer blossoms, and they were much the best out-door roses of their time in the garden.

MR. W. A. STILES, editor of *Garden and Forest*, has been appointed one of the Commissioners of Parks in the city of New York, for five years. This is a happy selection, and made because of the man's fitness for the position, and entirely beyond the pale of politics. Mr. Stiles is a gentleman of practical and refined horticultural taste, and he has always been deeply interested in the preservation and improvement of our parks and in making them attractive to the multitude without in the least degree infringing upon their artistic landscape effect and beauty. Just now, when the Botanical Garden is under way, and a large acreage of new park grounds has to be designed and improved, to have men of the efficiency and calibre of Mr. Stiles at the head of the Park Department is a credit and an honor to the city of New York.

ANJOU PEARS.—Messrs. Ellwanger & Barry of Rochester, N. Y., have sent us a box of these superfine pears to show us what an excellent fruit it is, and how good to grow for either home use or market purposes. The pears are clean-skinned, even in size, just ripe, but in a cool place they may be kept in perfect condition for a considerable time yet, and they average eight ounces each. The trees are healthy, vigorous, early and sure bearers every year, and adapted for general cultivation over most all the country. At Dosoris we have many trees of it, and all behave well and bear fine fruit. Besides being our best seasonable dessert pear, it is also our best fruit now for stewing. As ripe fruit we have been using it since the middle of October, and we hope to have it in fine eating condition till the holidays. There is both pleasure and money in a pear like this.

POISONING BY TULIP BULBS.—Our attention was recently called by some of the workmen in a large seed and florists' store to the condition of their fingers, the tips of which under the nails were cracked and "in raw flesh," caused, they told us, by handling tulip bulbs. Every year at bulb time the same thing occurs, and in a much more painful degree when they handle the home grown bulbs than when they are at work with the Dutch grown stock; of course these men handle tens of thousands of tulips. In a cursory examination of the wounds we could not tell what was the real cause of the trouble, but on examining the tulip bulbs we are inclined to believe it is caused by the fluff or hairs so plentiful under the brown outer skin, and we are strengthened in this opinion by the fact that the brown skin of the home grown bulbs is much more broken than is that of the imported ones, hence the fluff has a greater opportunity of escape. The men now protect their hands with rubber finger-tip shields.

MUSHROOM CULTURE—PEEPING TOM.—A word with you: Some of our largest, oldest and most money-making mushroom-growers guard their methods of cultivation with the utmost secrecy; they have a perfect right to do this, they urge their methods upon no one, they interfere with no one. If you wish to know these secrets, and see the mushrooms growing, go to the grower openly and manfully state your business and place yourself in his hands. If he does not care to show you his mushrooms nor explain his methods of cultivation to you, he will tell you so and treat you civilly. Sneaking around into this corner, that corner, and the other, where you have no right or permission to be, hiding as it were from the proprietor, and attempting to obtain information surreptitiously from the hired men at work, are dishonorable methods, that no self respecting manly man would condescend to. And meaner still when that same fellow goes around to growers who open their doors to any interested person and boasts to them of the ignominious way in which he sneaked within the gates of their more secret neighbor.

CHRYSANTHEMUMS IN THE BROOKLYN PARK.—One of the large greenhouses in Prospect Park has, during the past month, been completely filled with bright and beautiful chrysanthemums grown in pots, and the public was invited to come to see them. Among the handsomest flowers were Golden Wedding, Mrs. Chas. Lanier, W. Brown, Mrs. F. L. Ames, Mrs. J. G. Whilldin, and Gloriosum, all yellow; Mrs. W. P. Henszey, crimson, reverse gold; Cullingfordii, glowing crimson; Jeanne Delaux, dark crimson maroon; Val d'Andorre, red, striped yellow; Ivory and Mrs. L. Canning, white, and Good Gracious, Viviand-Morel, and Waban, pink, and scores of others equally good were there. But the largest plant by far,—broad, stocky, and full of leaves to the ground and a snow mound of flowers, was a 7-foot wide specimen of the single white-flowered sort called Daisy. After the chrysanthemums are past this greenhouse is filled with other seasonable blooming plants, and its floral fullness and gaiety maintained all the winter and spring, and it is filled with tender aquatics in summer. Adjoining ranges of greenhouses are devoted to palms, cacti, ferns, orchids, etc., and all are freely open to the people. This is as it should be, and as we hope to see it in the parks of every city in the country.

Supt. Egerton, of the Albany parks, tells us about how it is done in his city; Pittsburgh, Pa., and Chicago also have spacious greenhouse gardens teeming with floral beauty and tropical luxuriance as much for the benefit and pleasure of the public in winter as are the outdoor flower beds and rose gardens in summer.

POISONOUS WILD PLANTS IN AND AROUND NEW YORK.—Dr. Henry H. Rusby delivered a lecture in New York a few nights ago on this subject. Among plants more

or less poisonous he mentioned the following: Aconite, roots sometimes mistaken for horseradish; poisonous mushrooms; black cohosh (*Cimicifuga*); white and red berried baneberry; birthroot (*Trillium erectum*); dogbane (*Apocynum*); man-of-the-earth creeper (*Ipomœa pandurata*); Indian turnip (*Arisæma triphyllum*); bloodroot (*Sanguinaria*); mandrake or May apple; pokeroot (*Phytolacca*); lily of the valley "is powerfully poisonous"; water parsnip or water hemlock (*Cicuta maculata*), "a root that has destroyed more lives than all the others mentioned combined"; the common wild parsnip, "through its local irritant properties"; the black elder (*Sambucus Canadensis*); "is very poisonous"; the seeds of the horse chestnut, and probably the bark; the roots and bark of the common locust, and in a lesser degree its leaves; horse radish and water cresses both when eaten in inordinate quantity; several cases of poisoning of domestic animals by eating juniper and various species of buttercups are recorded; garden celandine "is a drastic poison"; tansy, injudiciously used; henbane; Indian tobacco (*Lobelia inflata*) "has an extensive record of fatal poisoning cases"; unripe fruit or berries of the common potato; the fruit of the May apple; the fruit of the red buckeye; and a good many others. He remarked that "most poisonous roots are most active when fresh." And in explaining that while one part of the plant may be good to eat another part may be virulently poisonous, and instanced "The young shoots of pokeroot make a delicious green very similar to asparagus, but the root is poisonous. Very young potatoes or sun greened ones are poisonous."

GEORGE SUCH.

Many are the lovers of horticulture and the cultivators of fine plants who will regret to learn of the death, a few weeks ago, of Mr. George Such, of South Amboy, N. J. For several years he had been in failing health, and a few months since in company with Mrs. Such he sailed for Europe, hoping the sea voyage would do him good, but it didn't, and he immediately returned to New York, where he died in less than a week after his arrival.

Between fifteen and thirty years ago he had the greatest greenhouse establishment on this continent, and there is not now and there never has been another to equal it in progressive importance. Mr. Such loved flowers and he gathered into his greenhouses from home and abroad, regardless of expense, a vast array of the most beautiful and deserving plants obtainable, he knew them thoroughly and grew them all with a loving care and in perfection, and from the knowledge that grew out of it he obtained the purest happiness. Mr. Such's nature was retiring and a modest one, but he certainly gave a greater impetus to the love for rare plants and orchids than any other one man in this country, either florist or private gentleman, not only by a lavish expenditure of money, but by intelligent and successful cultivation of them, by the publication of catalogues of extraordinary correctness and which showed forth in every line uncommon culture and knowledge, by many and most extensive public exhibits of rare plants, and by an unbounded hospitality shown to numberless strangers who were attracted to his home by the fame of his collection.

EUROPEAN IVY.—E. H. A., New York, sent to a prominent florist firm for some plants of *Hedera Helix*. They replied that they did not know any plant of that na e, and after making some inquiries, they were unable to tell anything about. It is almost incredible that any intelligent florist in America should not know the botanical name of so common a plant as the European or English ivy. But surely this was a mistake of an ignorant order clerk.

The Fruit Garden.

OUR COOL GRAPE HOUSE.

We have been much interested and gratified with the account of Mr. Smith's cold grape house which we find in GARDENING, Nov. 1, page 55. Think of 24 years of success and not a single failure! Of what outside crop can the same be said? Now we went to school to Mr. Smith, he taught us what we know of grape culture, and as he taught us so have we practiced. But our grapery is only 12 years old, still there has not been a single failure in it during this time, and something from this house has been seen at our annual fairs every year, and we have received for it our quota of prizes and gratuities, something every year, testimonials of the success we have had in carrying out the principles of grape growing as taught us by Mr. Smith.

Our cold grape house is span roofed, 40 x18 feet, and contains 36 vines, mostly Hamburghs. It is almost a copy of Mr. Smith's. But the inside is a hard gravelly core that gets no water, or very little, the year through; the vines must get their living from the outside border alone. One thing is certain, in following Mr. Smith's methods we have had success first to last, and grapes in abundance for ourselves and our friends.

FEARING BURR.

Hingham Centre, Mass.

A cool grape house consists of a greenhouse without any fire heat in it. Such a house is inexpensive, easily constructed, and easily run, and there is very little labor indeed attached to it. If you want a cheap, light but serviceable structure, make a rough outline of the house you should like to get, and submit it to one of the firms advertising greenhouse-building materials in GARDENING for an estimate.

If you wish to build it yourself or have it built by your village carpenter, they can furnish you with sash bars, plates and all other woodwork and iron parts better and far cheaper than your village man can get them out for you. The price of glass is quite reasonable; you can get it at any dealer's store. Or if you want a real nice job, get the greenhouse-builder to estimate on the whole job. Write to him anyway.

BERRIES, GROW MORE OF THEM.

Any intelligent amateur can grow ripe luscious strawberries, ready for picking, at two cents per quart. With good cultivation at the rate of 100 bushels per acre should be grown; in fact, 200 bushels per acre is not an unusual yield, and 300 is often produced. Fruit that can be grown so cheaply and in such quantity, should be considered a necessity in every family.

Growing them yourselves you can have them fresh from the vines, ripe, delicious and at a cost of only two cents a quart! Let us see what market berries cost the raisers: For good berries, carefully picked in clean new boxes, well packed and honestly measured, it may be estimated by the quart as follows, (and for anything like good berries you have to pay much more than this):

Cost of growing ready for picking	2 cents.
Picking	1½ "
Boxes	1 "
Cases, packing and delivery	1 "
Freight or express charges	1½ "
Commission for selling	1 "
Actual cost on market	8c per qt.

Now you can raise four quarts of berries in your own garden or field for that price, and you can raise from six to ten quarts for the price you pay your market man for the finest quality fruit, and every one of your own berries is solid, fresh, quite ripe, and delicious.

You can have your berries at first cost, and picking them provides a pleasure for wife and children. Every amateur in the country and every owner of a house in the the village, should grow big berries and lots of them for family use. You may thus have them fresh from the vines in summer, and canned, dried, or preserved for winter. There is no better food than ripe fruit. There is none more healthful, and at two or three cents per quart there is none cheaper. A berry garden for next season should be decided upon at once.

Sparta, Wis. M. A. THAYER.

PAINTING A GREENHOUSE—GRAPES.

1. I am building a small greenhouse 16x42 three-quarter span. How shall I manage to paint the roof after it is finished? What contrivance has the painter to stand on to reach the sash bars, ridge, etc? Now this may seem a very simple question, but no one here can tell me anything about a greenhouse. My lumber is best quality Louisiana cypress and given a coat of hot linseed oil before put up. I also want to know about having a

2. BLACK HAMBURGH grapevine ripening in this house, but planted outside. I have left openings in my front wall (hollow brick wall) for two vines and one must be a Black Hamburgh; which will be the best white grape for the other vine? I do not wish to force them at all, but simply to ripen under glass.

Tracy City, Tenn. E. O. N.

1. By the simplest contrivance possible,—glaziers, step brackets tacked on to the rafters, say 6 feet apart, and a plank laid across them. There are some professional greenhouse builders at work here just now, and this is how they do it. The brackets are strips of board ⅞ in. thick and nearly 2 inches wide with the ends bevelled to suit the slope of the roof, and tacked to the outside of the sash bar. When the top is all glazed and painted the upper row of brackets is removed, nail holes puttied, and the next stretch finished, the lower stretch can be reached from the ground or a pair of steps. Owners of greenhouses generally have two or more glazing ladders, which consists of a common pine board with bracket steps, board wide, and about 2 feet apart; two or three, 2 feet long narrow strips are nailed across on the under side of the board-ladder to keep it from breaking through the glass, the strips crossing two or more sash bars. When two of these ladders are laid on a roof a board can be placed across them to act as a scaffold; but in replacing broken glass or painting a careful man needs no scaffolding other than the ladder. Modern greenhouses are, as a rule, surmounted by a fancy iron cresting run

along outside on the ridge-pole: were it not for this, with a 2-inch thick cleat nailed under the upper end of the ladder, we could hook the ladder on to the ridge-pole and make the task of glazing quite easy. Where the houses are crested we overcome the difficulty by hitching the end cleat of our ladder on to the cross bar under the ventilator, but we have to open the ventilator a little to do this. For the roof, benches and floors cypress lumber is very good, but for doors we prefer white pine; it doesn't warp so much as the other.

2. Black Hamburgh, as a black grape, and Muscat of Alexandria as a white are the two best grapes you can plant. Your arrangement seems to be all right, but mark, you mustn't keep the vines in the greenhouse in the winter if you are going to grow other plants in it. After the grapes are cut, unfasten the vines from the trellis, bend them down to one side and box or otherwise cover them up to keep them cool, or better still, have it so arranged that you can turn the vines completely out of doors in winter, tying them together and covering them up even then.

Exhibitions.

THE NEW YORK FLOWER SHOW

Held in the concert hall in Madison Square Garden, Nov. 25-30, was the most beautiful we have seen in many a day, the exhibits without exception were superb, and there was no crowding, neither was there anything of that distasteful feature so often peculiar to large flower shows, the introduction of a lot of rubbish to help fill up the space. The whole matter of hall decoration and floral arrangement had been placed in the hands of Mr. J. I. Donlan, an expert is this line, and his work was elegant, refined, plain and good. Southern evergreen smilax and long-leaved pine branches were mostly used against the walls and many of the competing palms, bays, araucarias, large ferns and the like disposed that they formed a part of the hall decoration without interfering with their positions in the competing classes. Palms, dracænas, crotons, marantas, aralias, and other fine leaved plants in pots formed circular mounds; two magnificent species of a long drooping-fronded fern (*Polypodium subauriculatum*), with leaves touching the ground, were supported on trestles 8 or 9 feet high. Cyclamen in pots were massive, but compact, and in fine leaf and flower. Siebrecht & Wadley, of New Rochelle, made a beautiful display of orchids in bloom,—*Dendrobium formosum giganteum*, a showy white-flowered one, being particularly attractive.

CHRYSANTHEMUMS were the leading feature, and mostly as cut flowers. They consisted of individual blooms each standing on a long, strong, leafy stem, and were models of perfection. Happily there was nothing of the old flat board system where the short-cut-off leafless flower heads used to be laid flat on boards in deceptive array. By the system of to-day, when every bloom must have an 18-inch long stem, we can at once see what kind of plant it grows on, whether it is weak-necked or strong, full or sparsely leaved, subject to mildew or not. And several had as much as 3-foot stems. Among the finest yellows were Eugene Dailledouze, W. H. Lincoln; Golden Wedding, Major Bonnaffon, W. H. Rieman (globular heads, fine stiff leafy stems), Dr. Covert, D. G. Hughes; white, Queen (cut before too old), Philadelphia (shown perfectly white, but few flowers of it), Mrs. J. Jones Mayflower, Niveus (quite a number of), Our Mutual Friend (this might be better), Flora Hill; pink, Viviand-Morel and Pres. W. R. Smith (apparently the two favorites), Zulinda, Erminilda, Ada H. LeRoy, and Indiana; bronze, Harry May; crimson, Cullingfordii and Shrimpton.

THE ROSES were very fine, some Bridesmaids being the finest ever shown in New York. Among the best varieties were The Bride, Niphetos, Kaiserin Augusta Victoria (superb), white; Catherine Mermet and Bridesmaid, pink; the invincible American Beauty, deep rose; Meteor, velvety crimson; and the new Mrs. W. C. Whitney bright deep pink; and Belle Siebrecht, bright rose.

SELECT CARNATIONS.—There was a splendid array of carnations in competition for the Dean $50 silvercup. Mr. W. C. Ward, of Queens, won it with Daybreak, Bridesmaid, Wm. Scott, and Mrs. Chas. Duhme, pink; Meteor, crimson; and Ethel, Lizzie McGowan, and Storm King, white. Among other varieties that looked particularly well were Bouton d'Or, pale yellow; Eldorado, yellow; Goldfinch, yellow; Alaska, white; Maud Dean, inner part of petals blush, outer part white; and Lily Dean, a lovely pure white flower penciled around the edges with bright pink. The yellow carnations are not pure yellow, our winter blooming sorts are more or less variegated with pink.

AT THE FLOWER SHOW HELD HERE last month, the prominent chrysanthemums were Minerva, Georgienne Bramhall, and H. L. Sunderbruch, all yellow; Philadelphia, creamy white; Viviand-Morel, and Mrs. G. West, pink; G. W. Childs, and Mrs. A. J. Drexel, crimson; and Niveus and Queen, white. "Majencha," an incurved, dark pink variety of the C. B. Whitnall type and raised by Malcolm MacRorie, obtained first prize as a seedling never before exhibited. Conspicuous among the many fine orchids were *Cattleya labiata* and *C Bowringeana*; *Dendrobium Phalænopsis Schrœderianum*; and *D. formosum giganteum*; *Oncidium varicosum, Rogersii*, and *Gravesiana* a variety of *O crispum*, and a fine specimen of *Cypripedium vexillarium*. Other plants that were the center of much attraction were a splendid specimen, fourteen feet high, of the rare palm *Phœnicophium sechellarum* from Mr. MacRorie, *Piper* (Cissus) *porphyrophyllum*, an ornamental leaved tropical vine from Mr. W. A. Manda; *Heliconia aureo-striata*, a bold and beautiful variegated leaved tropical plant belonging to the banana family from Mr. Henry Graves, and a fine *Cycas circinalis* and a pair of specimens of *Zamia spinulosa* from the Rev. Father Fleming. W. FITZWILLIAM.

Orange, N. J.

The Vegetable Garden.

OUR VEGETABLES.

We grow a full assortment and large quantity of vegetables and try to have an abundance of everything in its season and of the best quality.

ASPARAGUS.—We grow Conover's Colossal. It is planted in good, well enriched ground, in rows, the plants two feet asunder in the row and about six inches under ground. The stems are mown off close to the earth late in fall and burned, and a good coating of manure spread over the ground and forked in quite lightly. Many growers leave the manure on the top of the ground all winter, but I prefer digging it under to save it from sun and wind. Whatever roots are needed for forcing are dug now (in November) before hard frost sets in, and stored close together out of doors, covered with some sedge or leaves to keep them from getting dry, and have them easily get-atable at anytime they may be needed for forcing. It is not necessary to preserve them from frost, indeed after getting some frost they start quicker into growth when brought into warm quarters than had they been kept beyond its reach.

SNAP BEANS.—We confine ourselves to Valentine, and make a small sowing of it once a week or ten days, from the 20th of April till the latter part of August.

LIMA BEANS.—We grow the Large White and Dreer's Limas in hills 4 feet apart each way, using red cedar poles for them. They like good ground, well manured and deeply dug. Although we can get all the poles we want quite readily here I grow both Burpee's and Dreer's bush Lima beans and like them quite as well as, the pole varieties. I plant them in rows three feet apart, and after they come up and get good start in life, thin them out to about a foot asunder in the row. I have picked about two bushels of shelled Limas for use in winter, indeed we are very fond of the ripe beans baked much as one would Boston baked beans.

BEETS.—These are housed now. I grow Egyptian, Blood turnip, and Edmand's for turnip beets all summer and to last into winter, and Long Smooth Blood for winter. All of these are of good quality and have fine dark-colored flesh when boiled, the turnip rooted ones especially. We sow as soon as the ground is dry enough to work in spring, and once a fortnight after that till the latter part of July, when we put in our main winter crop of turnip sorts; the Long Smooth Blood taking a little longer to grow is sown early in July. Of the summer sorts, we sow a little at a time and often, for they soon get foggy in the heart and tough, then they are fit only for the pigs or cows.

BRUSSELS SPROUTS.—We grow the Half Dwarf, sowing it early in May. Even when sown as late as the first of June I have had fine sprouts, but altogether results are better and surer from the earlier sowing. Plant out in rows 2½ to 3 feet apart and 2 feet asunder in the row as one would cabbage. Leave them out as long as possible in fall, taking them in late in November, that is before the ground gets hard crusted by frost. Before pulling we strip off the rougher leaves and often nip the top out, then keeping some earth to the roots, we heel them in heads up and quite close together in a pit or deep frame, covering them with spare sashes to give them light and keep them dry, and with sedge over the sash in severe weather to exclude hard frost. The roots should be in moist earth to maintain the plumpness and freshness of the sprouts, but the stems and sprouts should be kept dry to save them from moulding or rotting. They may also be kept in a shed or cellar, observing the same conditions, but don't have them in the house cellar, for they exhale a strong cabbage smell. Why can't our seedsmen be more particular about their seeds of Brussels sprouts? The seeds germinate and the plants grow well enough, but many of them have a lank weedy habit and open flabby sprouts.

CABBAGES.—I grow Jersey Wakefield for early, Succession for intermediate, and Autumn King for late. For early we sow in flats in the greenhouse about March 1, then prick out into a spent hotbed, or cold frame, and plant out in April as soon as the ground is mellow and warm enough, in rows 2 feet apart each way. Wakefield and Succession sown at the same time and given the same treatment give a succession. For a further succession sow in the cold frame in April, and plant out in May. For winter I sow in June, usually about the 7th or 14th. Autumn King is not only an excellent cabbage but a fine keeper. We winter our cabbages out of doors, burying them heads down, roots up, in double close-packed rows, in a furrow. The earth is plowed or drawn up over them. Some tree leaves and sedge placed over the ridges excludes the frost enough to allow us to pull out the cabbages in winter as we want them without the aid of a pick and shovel. But be careful not to over cover the cabbage, else they will rot, and be sure that no water stagnates about them.

CARROTS.—Just as soon in early spring as possible I sow a row or two of Early Short Horn, and twice as much of Stump rooted to succeed the former, in rows 15 inches apart. A row or two more of the Stump-rooted in May keeps up a supply of tender carrots till fall. In June we put in our main sowing for winter. The Short Horn is a small carrot and used only because of its earliness. They are now stored in bins in the root house and covered with moist sand.

CAULIFLOWER.—For all purposes, early and late, I stick to the Snowball. For early I sow and treat it the same as we do our early cabbage except plant a little closer in the row, but in order to get some in earlier than we do from outdoor plantings I set some plants 9 or 10 inches apart in a frame, letting them stay there to heart. I sow about the end of June for fall cauliflower, and two or three weeks later for a winter crop. This latter sowing won't be full hearted before hard weather sets in, but if lifted, stripped of its rougher leaves, and heeled in in a well wrapped cold frame it will perfect very pretty heads between November and January.

CELERY.—White Plume for early and Giant Pascal and Perfection Heartwell for main crop are what I grow. I usually sow out of doors in April and when the seedlings come up prick them off into beds in rows about 3 or 4 inches apart each way; this gives me stockier and better rooted plants for setting out than I could get be leaving them in the seed rows till big enough for planting. But this year my first and a second sowing failed, and I didn't get a crop to germinate till June; thus I was unable to plant out any till the first of August, and curious enough I never had finer celery than I have now. I planted rather thickly in single rows 5 feet apart; the rows were not on the ground level but in shallow trenches formed by throwing out one spit of earth all along the line, and to this trench I largely attribute the successful growth of the celery. The fall was dry and under ordinary circumstances exceedingly poor weather for celery, and watering the crop if grown on the ground level would be tedious and insufficient, but in the trenches easy enough, and I flooded them every week, and the plants grew like weeds, and this rapid growth has rendered them very tender. In earthing them up I "handle" all the heads before banking up, that is gather the leaves close together and pack the earth tight around the head with the hand, before banking with the spade. In storing for winter, I cut down the side of a ridge perpendicular with and some 7 or 8 inches from the row of celery growing in it, and without disturbing this row, now lift the celery in one or more other rows and pack it up close together in a single row in the perpendicular cut already mentioned and earth up firmly and to the top This is simply putting two rows in a ridge where only one grew before. Now cover over the top with boards nailed together like an inverted V to shed the water, and mulch with leaves and sedge to exclude frost. In this way celery always keeps well with me till April. I may say before planting I put some finely rotted manure in the trenches, also a dusting of guano, and fork it under, mixing it well with the earth.

CORN.—I grow Cory for early, Crosby to succeed it, and Stowell's Evergreen for main crop. By sowing all three at the same time they succeed each other nicely. After the first, or a second sowing, I drop both Cory and Crosby, for the time, and restrict myself to Stowell's, sowing once in ten days till July 4, when I put in a tolerably large sowing and another of the same on the 15th. On the 20th or 25th I put in also a good sowing of both Cory and Crosby. In this way I am sure of young sweet corn till frost comes, in fact frost often comes in fall and nips the corn leaves, checking the growth of the plant, and without hurting the ear inside of the shuck, and as growth has been checked the ears stand still as it were and in this way stay young and usable may be till the last of October or the first of November. I plant the hills 4 feet by 3 feet apart, and retain only four plants in each hill.

CUCUMBERS.—For the summer crop I restrict myself to the Improved White Spine; it is easy to grow and sets freely and the cucumbers are of good quality. I sow in hills in a hotbed in March for spring fruit, and out of doors early in May. As none of the outdoor cucumbers is long-lived we sow a few hills once every three weeks all summer, and in this way have a crop till frost destroys them. For a greenhouse or winter crop while the White Spine would fruit well enough the Telegraph is much more prolific and otherwise superior. But the Telegraph is useless for out of door cultivation with us.

EGG PLANTS.—Have a few plants of Early Dwarf Purple for early, and grow Improved New York for main crop. I sow the seed in flats in the greenhouse about March 1, and prick into a gentle hotbed or warm frame in April, and plant out of doors about the end of May or early in June, 3 feet by 2 feet apart. Egg plants transplant very well. All summer long we have to watch for potato bugs and hand pick or poison them. If you cut off all the fruits you don't want just as soon as they are getting a little old the plants will continue in good bearing till into October.

HORSERADISH.—Choose good, deeply worked, and if practicable moist soil. In early spring plant the sets in rows 3 feet apart and 18 inches from each other in the row, and 2 inches under ground. The sets are 10 or 12-inch long pieces of the stoutest and cleanest thorg roots. In November or early December dig up the most of the horseradish and store it in moist earth in a box or bin, or in a pit outside as I will describe for parsnips, keeping it as cool as possible, even to letting it get frozen; before storing, the thongs or roots should be broken off the main root, and these thongs buried outside till spring, when they should be unearthed and used for sets.

KALE.—I like the Dwarf Curled best. Sown when we sow our winter cabbage in June, and planted out in July it makes fine, large broad plants by November; even sown in July and planted out as soon as convenient it makes good heads. It doesn't require to have a certain age or large development before it is fit for use, for any sized plant, large or small, after it gets the frost, is good to eat. But really, for nice tender kale I think the sprouts are better than crown tops. These sprouts are best obtained from May or June sown plants, set out early and grown to a large size, when in September the tops should be cut off; this induces them to send out sprouts from every eye on the stem. Kale is so hardy that we may leave it out in the garden till Christmas if we wish to, cutting it as we need it; or strip the outer leaves from it, and lift and heel it in close together in a pit, frame or in the corner of a cellar where its roots can be moist and top dry, or heel it in close together in a warm corner out of doors and cover it with leaves and branches, so that we may get at it readily whenever we wish to.

LETTUCES.—I grow three varieties, namely Boston Market in frames in winter, Big Boston in frames in fall and spring and out of doors in spring, and Salamander in summer. I occasionally also grow New York in spring and fall and find it an admirable variety, making a heart almost as solid as a cabbage. I may as well say here that notwithstanding all that we hear and read about the "leafy" or open headed lettuces, they are not popular with private families, solid hearted cabbage lettuces get the preference every time. Sow sown in the greenhouse February 1 gives nice plants to set out in hotbeds in March. For late fall and early winter lettuces I set out the young plants in cold frames about the end of August, a point to note is, be sure to get the plants well headed before winter sets in, in; if you do they will keep in good condition for a long time.

OKRA.—Of the dwarf variety I make a sowing in May, and by keeping the pods picked off clean, the plants keep on bearing till frost comes.

ONIONS.—Southport White Globe, Yellow Danvers, and Red Wethersfield are the varieties I raise from seed every year, and the Silver Skin from sets in spring. The ground for onion seed should be rich and moist, that for sets, if need be, may be much lighter. I sow the seed in rows 15 inches apart, as soon as the ground permits after middle of April, and as a rule harvest the crop early in September. Keep the bulbs cool, dry and well ventilated, and protect them, if you can from hard frost.

PARSLEY.—There is nothing better than Moss Curled. I sow it out of doors in early spring. For winter and spring use I sow it in a cold frame at midsummer, and it is now fine large parsley, fresh and green. While it will stand a little frost hard frost hurts it, so we band around the frames and cover them over in winter to shut out the frost. But look out for field mice, they dearly love to get into a parsley frame, and their work of destruction there is fearful. They get in when the frames are being ventilated, and they often burrow in through the banking and under the frame.

PARSNIPS.—The Hollow Crown is the only one I grow. It likes deeply unfastened, good ground. Sow in rows 2½ to 3 feet apart. As I want to get all the ground emptied, manured and dug in the fall I don't leave out any parsnips in the row

over winter as many do, but lift them all and bed them, and they keep excellently. We bed them in this way: In a convenient sheltered spot in the garden we throw out a trench about a foot deep and two feet wide, just as if it were an ordinary little pit for potatoes, and here we lay the parsnips close together, heads up and all even at top, and roots down just as they grew, with some dirt between them; on account of the length of the roots the tops will be some inches above the general ground level but as the earth that had been thrown out of the trench forms a bank on either side, the parsnips are not only earthed full to the top, but the grading bank on each side sheds water from them. A little earth is also spread over the crowns. Then we lay an inverted V shaped wooden cover over the trench, and cover it over with leaves and sedge enough to exclude hard frost. In this way the parsnips keep as well and as plump and fresh and for as long a time as they would were they left in the open ground. I bed salsify in the same way, in fact in the same trench.

PEPPER.—Ruby King answers every purpose, but for pickling include a few plants of Cayenne. Treat the same as egg plant.

PEAS.—Just as soon as spring opens I sow First of All, Alpha, and Heroine, in a warm well drained piece of ground, and 8 to 12 days later, according to the weather, repeat the same sowing. This gives me a fine succession. After that I sow only Juno and Heroine, two splendid peas. The last sowing for summer is put in about June 20. About the first of August I sow again, this time First of All and American Wonder, and repeat sowings of the same sorts twice, say about the 10th and 20th. Fall peas are not always a satisfactory crop; should the weather prove hot and dry they will neither pod well nor grow well; they like moisture and long cool nights.

POTATOES.—Even at the risk of being called old-fashioned I still stick to Early Rose and Beauty of Hebron. Manure broadcast, run the drills 2½ feet apart, sprinkle a little fertilizer in the rows.

RADISHES.—Early Scarlet Turnip and French Breakfast are what I use. We make our first sowing in a hotbed as early in March as the weather will allow.

RHUBARB.—It is pretty hard to say which variety is best, we generally lift and divide our biggest and finest leaved clumps and in this way keep up a good selection. For winter forcing we lift a lot now and store it inside or in a shed with some leaves or sedge over it to keep it away from wind and sunshine, but not from frost, and bring it into a warm greenhouse as required. A dark place under the bench suits it all right.

SALSIFY OR OYSTER PLANT.—The Sandwich Island variety has displaced the old and smaller sort. In sowing, growing and storing for winter treat the same as parsnips.

SCORZONERA being so much like salsify, but harder to get a good crop of, I have given up growing it.

SPINACH.—I always sow a row of Round Leaved Spinach between the rows of peas in spring, and make a few successional sowings nine or ten days apart. But after we get narrow peas there is not much demand for spinach till fall, when I again sow it between the rows of peas, and at the same time as the peas. This gives us good spinach till into November. If we want it in winter we have to cover it with frames, or grow it in a cool greenhouse. For wintering over out of doors I sow a patch in rows 15 inches

[CONCLUDED PAGE 94.]

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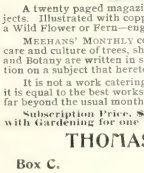

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apart about September 15, and scatter some sedge over it about the end of November to save it from sunshine and frosty winds in winter. The Round Leaved is what I use for all sowings either for summer or winter.

SQUASH.—Hubbard and Boston Marrow are my favorites. I sow them in May. I winter the squashes in a warm cellar, laying them on the cement floor. A cool room is not good for them, neither is a damp one.

TOMATOES.—Like most folks I grow more varieties of these than there is any need for and run them all, except the dwarf sorts, up and over a make-shift wire trellis, to keep the fruit up off the ground and lessen its tendency to rot. This year I had Ponderosa, Crimson Cushion, Mikado, Table Queen, and Ruby, but the two last ones are the best of the lot. Ruby is a fine early, being nearly two weeks ahead of Table Queen, but for main crop the last named is best, indeed, as regards quality I don't know of a better sort. I sow in March in the greenhouse and afterwards prick the seedlings out into frames and otherwise treat them in the same way as we do egg plants and peppers, except that we plant them out of doors much earlier, and further apart in the hills.

TURNIPS.—For early I like the Snowball, for summer the White Egg and or winter the White Rutabaga. Of the spring and summer varieties I make a sowing every 14 or 20 days, for summer turnips soon get foggy inside and bitter tasted, and we can enjoy them only when they are young and tender. The rutabagas are sown about the middle of July. We always sow our turnips in rows on level ground; I don't like sowing on raised drills because the seedlings are apt to burn out in hot dry weather. Summer turnips rotted badly with me this year. Keep the winter turnips in a cool cellar or pit or covered up in a shed. While a little frost won't hurt them it is better to keep them free from it.

GEORGE DONALD.

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THE PAPER is like one of the flowers, "a daisy," ever blooming. I thought I could get along this year without it, but it is no use trying; we must have it. Success to Mr. W. Falconer.

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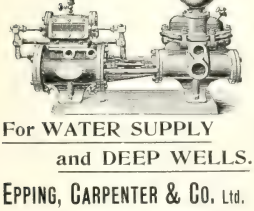

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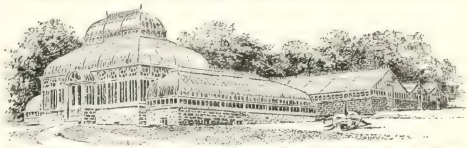

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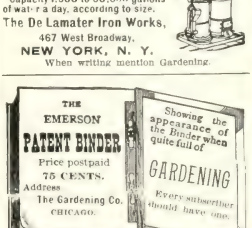

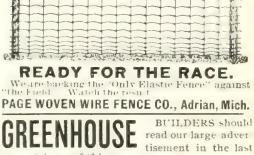

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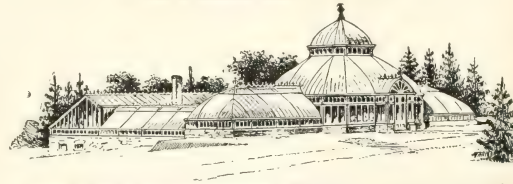

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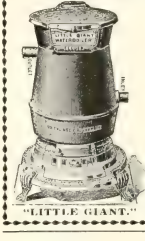

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GARDENING

Vol. IV. $2.00 A YEAR 24 NUMBERS. CHICAGO, DECEMBER 15, 1895. SINGLE COPY 10 CENTS. No. 79.

HOUSE OF CHRYSANTHEMUMS AT BARONALD, ORANGE, N. J.

Chrysanthemums.

CHRYSANTHEMUMS IN THE GREENHOUSE OF MR. WM. BARR, ORANGE, N. J.

The accompanying illustration, engraved from a photograph taken specially for GARDENING, shows a view in one of the greenhouses in the garden of Mr. Wm. Barr, Llewellyn Park, Orange, N. J. The chrysanthemums are single stem, one flowered plants grown in 6-inch sized pots. John Farrell, the gardener, is quite an adept in growing fine chrysanthemums. The plants shown in the picture were raised from cuttings struck last June, and have been grown on in pots since then. Among the most noticeable varieties in the group are Latest Fad, yellow ribbons, Nyanza, crimson and gold; Robert M. Grey, terra cotta, hairy, Louis Bœhmer, purplish pink, hairy; Georgienne Bramhall, primrose yellow; Mont Blanc, white, reflexed, Condor, white; and American Eagle and San Joaquin, fine anemone varieties. Kumo is a new variety, a seedling of Mme. Drexel and similar to it in color—pink—but the flower is very large, loosely shaped, and shows the eye. It is fine as a single-flowered variety, but not so good a specimen plant. It is the tall one seen to the left and also on the floor, in the picture.

The following varieties have also done well here. Mrs. George West, pink, incurved; Niveus, white and fine for single blooms; L. Canning, similar to the last in shape, but so large or of such a pure white color, it makes a fine pot plant though; and The Queen, one of the best of all incurved white sorts for private or commercial purposes. Other extra fine sorts are Harry Balsley, delicate pink; Pitcher & Manda, yellow and white; Mrs. George Magee, a ball of pink; Century, rosy heliotrope, fine variety for a standard; Abraham Lincoln, creamy white shading to greenish yellow in the center; Creole, dark purple, reverse of petals silvery pink; George S. Conover, yellow; Violet Rose, as its names implies; Chipeta, "ripened oak-tree leaves," Zipangi, bronze; Ella May, yellow; Lillian Russell, silvery pink; Mme. Carnot, white,

large, reflexed, and Helen A. Babcock, crimson and gold, of the Mrs. C. H. Wheeler type, it is one of Mr. Barr's seedlings.

AN AMATEUR'S CHRYSANTHEMUMS.

I have just been reading the November 15th GARDENING with great pleasure, even more pleasure than usual, for it seems to me to be one of the best numbers ever published, and I am moved to tell of my way with my first chrysanthemums by way of encouragement to very busy amateurs.

The plants, mostly florist's young stock, were put into 5 and 6-inch pots; using a few 4's for the weakest, early in May, and plunged in the garden, and well mulched. Allan—our factotum—was instructed to water them with the hose daily, except upon rainy days and to commence giving them liquid manure on the 1st of August and another thought was never given to them until September, when some swaying stems were tied to stakes. About the 18th of the month the pots were brought into the conservatory and from that time I watered them myself mornings, and Allen sprayed the plants in the afternoon. They were disbudded to the extent of only allowing one bud to a shoot, or in case of one stem, thinning to 4 or 5 buds, and the black aphis were dribbled with tobacco tea as they appeared and as the buds and blossoms became heavy, an occasional stake was needed, more to assist in thorough syringing of the foliage than to keep the stems upright.

This is the record of the labor part, now comes the enjoyment. Our conservatory is to lean-to, opening out of the dining-room, and has on the house side a shelf 3 feet from the floor, and another one 18 inches above it; upon these were placed the smallest and most regular shaped plants, and a row of taller ones set on stands on the floor, making a bank of foliage and flowers 7 feet high. Opposite is the usual long bench, which is a picturesque tangle of bloom. We dawdle over our meals and enjoy the sight. At an end window especially left for large plants is a jumble of Marie Louise, Bard, Niveus, Eda Prass, (very slightly pink), a tall red and yellow and a very crooked Puritan that would be a joy to any garden lover; Bard is a pretty red, when the sun strikes it. The first plants to be in full bloom were Mrs. J. G. Whilldin and Domination and they went to church about the middle of October; both in 6-inch pots. Domination has ten splendid flowers, is 3 feet high, and is just commencing to fade; isn't this an unusual height for this variety? [Yes, but much depends upon the method of cultivation.—ED.] Mrs. Whilldin is of regulation size and shape, is still in fine condition and I found no better plant of her kind, at the Chicago show. Waban is the most admired by visitors, but Wm. Robinson is my favorite, it is so free blooming and graceful, and the first shadings of tawny orange were exquisite. Minnie Wanamaker is better than Queen with me, and Mutual Friend is the dwarfest white, and best shaped bush. In yellows Major Bonnaffon disappoints my careless culture, it is not large enough; Tokio is an old time favorite, though late; and Lincoln and Rohallion are still later and fine; Hicks Arnold is lovely; Mrs. Jos. White gives variety by looking more like an aster than a chrysanthemum, and a semi-double seedling is a real little gem, it came from a packet of "summer blooming" seed sown last April but is in blossom now, for the first time. Robert McInnes is superb. In fact all on my modest list have proved to be eminently satisfactory except Good Gracious, Dailledouze and Pitcher & Manda, but the pinks are pale; and L'Enfant des deux Mondes always hangs her head. There is but one plant grown to a single blossom, a Jessica, and it is so large and beautiful that we mean to try it again.

We have some 65 pots, and the question has come up, how to find room for more. Do you think the following plan likely to succeed? At the east end of the carriage house, we would make a 3 feet wide bed and plant out in it, also have a similar bed for pot plants; over them, we would place a cheap glass structure, mostly made of hotbed sash, and furnish what heat would be needed for November and early December, would not a kerosene heater answer? When cut down the plants could be heavily mulched, but if they did not survive the winter, the loss would not be irreplaceable. We would like a list of early and desirable varieties, for the planted out bed.

F. N. B.

Crownpoint, Ind., November 27, 1895.

Against the east end of the carriage house would be a good place for a bed of chrysanthemums. But if you intend covering it with hotbed sash, 3 feet wide will be too narrow. If your temporary glass house when finished is 7½ feet high at back, 5 feet wide, and 5 feet high in front, it will just take a 6 feet long sash to fit the tops, giving overlap enough. For this the bed need be only 4 feet wide, the branches of the outer row can lean over enough to fill the space between it and the glass. Instead of setting upright sashes in front have it boarded two boards deep next the ground, then a row of 3 feet sashes on their sides between the boards and the eaves, and fastened in place by wooden buttons held by screws; this holds the sashes firmly in place and by turning the buttons we can lift down the front sashes at will. Don't have an upper shelf in this house. If this building seems to you to be too high, for instance if you grow short stemmed varieties like Ivory and Domination, one board in front under the sash is enough.

Yes, kerosene heaters might answer, but the heat from them isn't very evenly distributed, it may be too hot close by them and too cold at the furthest distance from them. And one must be very watchful lest they emit noxious gases. In the event of a sharp frost, if you have a strip 6 or 7 feet wide of coarse canvas or burlap, to tack on over the roof, and a piece of 3 feet wide old matting to hook on over the glass on the sides, it is a great protection against frost, and if you have artificial heat in the house, a great saving of fuel.

True, it might be possible to save all of the old robots, mulching them as you suggest, at the same time the surest way perhaps would be to have a pot plant in your regular conservatory of every variety grown in the make-shift house. One old root kept over winter should, if divided in spring, give you from three to ten young, rooted sprouts.

In the way of early varieties Ivory, Jessica, Domination and Gloriosum are excellent. See also lists given in last issue [December 1 of GARDENING.

MR. T. H. SPAULDING'S NEW CHRYSANTHEMUMS.

Our illustration, which we had engraved from a group of photographs taken in November last sent to us by Mr. Spaulding shows some of the beautiful new varieties which he has raised from seed. They include

Naushon, white.
Columbine, red and gold.
T. R. Keim, bright red and old gold.
Rena Dula, pink early.
Pride of Castlewood, finest white.
Jessie Whitcomb, yellow, a seedling of Golden Wedding.
Phryne, large chrome color.
Mrs. C. B. Freeman, hairy, clear yellow.
Red Warrior, W. W. Coles color, early, opening October 10 and being the earliest good dark one we have.
Clarence, carmine red and old gold.

NEW CHRYSANTHEMUMS.

[SEE PAGES 100 AND 101.]

These are three very beautiful new chrysanthemums raised and named by Mr. Thos. H. Spaulding of Orange, N. J.

RED WARRIOR.—Extra early, opens about October 5 to 10, and is one of the earliest dark red flowers we have got. The flowers are eight to nine inches in diameter and very showy, and the plant is healthy.

DAYBREAK.—This is a lovely clear pink flower shading deeper to the centre, it is quite early, blooming about October 10.

MARION CLEVELAND.—A fine full early white flower suffused with creamy yellow.

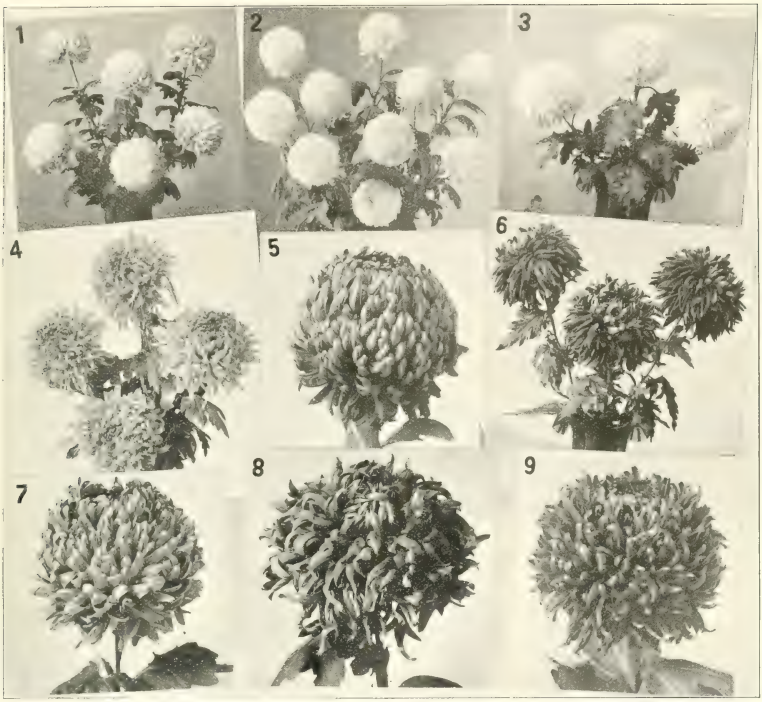
Trees and Shrubs.

THE CHINESE MATRIMONY VINE.

(*Lycium Chinense.*)

H. E. L., Conn., wanted another vine to add to those already planted alongside the piazza, and being attracted by the catalogue glory of the above, bought one and planted it with much care. "It did not grow so very much the first year, but all last winter we enjoyed in anticipation that beautiful vine which was to be covered with lovely flowers and brilliant scarlet fruit from early spring until late fall. * * * It did grow, and grow, but the branches instead of twining about the wire trellis stood out straight. * * * Late in the summer, after a minute search the "lovely flowers" were found, very small, too small to be seen a few steps away, but the scarlet berries nearly an inch long came not at all. The plant was also covered with insects all summer long, and nothing seemed to drive them away or kill them. In the early days of November the vine was dug up, root and branch, and thrown away."

Knowing that there must have been a mistake somewhere we picked a spray of the true Chinese matrimony vine, in full fruit, and mailed it to our correspondent, who now concluded that her vine was not the same as ours at all, but "one of the many substitutes sent by the florist." Well, we guess it was the common matrimony vine (*L. barbarum*), which as a decorative plant is vastly inferior to the Chinese one; we never knew the latter to fail to fruit well, in fact from October till Christmas it is the most showy plant in fruit at Dosoris. But its flowers, although very numerous, are neither showy nor beautiful, and they don't come in a crop till late in summer; and the fruit does not ripen up till fall, but it is brilliant in color and extravagant in abundance. Neither does the plant twine around a support nor climb, it is a sprawling, spreading or arching shrub like vine which, like a running rose, has got to be tied up to make it effective.



Kona Dola
Mme. C. R. Freeman
Phryne

President Carnot
Columbia
Jessie Whitcomb

Nawshon
J. B. Keim
Gloriosa

SOME NEW CHRYSANTHEMUMS

AMPELOPSIS VEITCHII.

I notice that a correspondent says, that after he set out the plant in his garden, he nailed the vine to the wall and it withered. I don't know the experience of others, but I almost invariably have had the same result when endeavoring to train any of the branches, they withered and died, but soon sprang up again from the roots. Let the vine have its own way and there will be no trouble and although the branches may not at first go in the desired direction yet in the end it will be found entirely satisfactory. Although perfectly hardy, young plants should have a little protection the first winter, which can be done by keeping up a small mound of earth around the stem, and which I find more satisfactory than mulching.

The *A. Veitchii* was imported into this country in the autumn of 1868 by Mr. Charlton, Rochester, N. Y., who propagated a few plants and introduced it in the spring of 1869. In late winter I procured a plant from him for the Washington Street Nurseries, Geneva, N. Y., and a few tiny plants were soon propagated, one of which I procured and finally planted at the front of my house in the autumn of 1870, and it is probably the oldest plant in the country. It measures 11 inches in circumference at the butt. From its small, delicate appearance at first, we thought it would make a fine basket plant, but on experiment its deciduous character was against its use in that way, and finally when its strong growth and perfect hardiness was ascertained it was seen that it would be an invaluable addition as a climber. My plants covers the whole of the east and south and about one-half of the north sides of my home, and make a very beautiful appearance. GEO. S. CONOVER.

Geneva, N. Y.

CHINESE GOLDEN LARCH AND KALMIA IN IOWA.

M. G. B., Eagle Grove, Iowa, asks: "Do you think the Chinese golden larch would thrive in our north-eastern climate? Also would you advise the planting of *Kalmia latifolia* here where the thermometer reaches 30° below zero in our winter extremes?"

Ans.—It is doubtful if either plant will succeed in such a rigorous climate. We have known the kalmia to submit to as much cold as that in winter but it was sheltered from sweeping winds and open sunshine, and the climate was not as hot in summer as is that of Iowa. The Chinese larch (*Pseudolarix*) is such a rare tree in cultivation that we really don't know how much cold it will stand. But we have sent you a few seeds of it and hope you may raise some plants and try them.

THE CAROLINA POPLAR.

I consider these poplars beautiful trees, and am always a little grieved when I see them recommended merely as stop gaps till other trees shall have grown. I wish GARDENING would use all its influence against having them pollarded in the barbarous way so many people do for the purpose of making them grow "thicker," like a chunky sugar maple or tulip tree. The cottonwood is a very slender tree while young, but as it grows

older it spreads and thickens according to its own beautiful habit and has a stateliness which is equalled by few other trees. Added to this its rapid growth, and its vigor under adverse conditions make it one of our most valuable trees.

South New Jersey. X.

The Flower Garden.

A BULB GARDEN.

We have got all of our bulbs planted, and what a lot of them! Every variety of narcissus, tulip, and lily supposed to be hardy here, and obtainable in this country or Europe has been set out, besides many others. I made six new beds twenty-five feet long by five feet wide for them. One bed is devoted to the newer kinds of iris. We have put a frame over one that is filled with anemones and calochortus.

HARDY PERENNIALS FROM SEED.

I raised a great many hardy perennials and biennials from seed last summer, and they are now in the vegetable garden, where they will stay till spring, when they will be transplanted to where they are wanted to bloom.

PERENNIAL ASTERS.

I have now got thirty-five kinds of perennial asters pricked off and growing. They are to be planted in the field fringing the pathway leading from the mansion house to the cottage garden here. We have already twenty-five kinds of wild asters growing there, and when they were in bloom there this fall they were beautiful. It is a wonder they are not more grown than they are, and besides making a display of out of doors, they are excellent for cut flowers.

SOME FALL FLOWERS.

Our cosmos was fine. The new Erlinda, white, and Rosetta, pink, were large and beautiful, so was the yellow Sulphureus. But our early frosts cut them before they came to their best. [At Dosoris we cut fine cosmos out of doors till November, and although they were not destroyed by frost till Nov. 20–21, after the first week of the month the blossoms became smaller and ill-developed. This mildness of climate is caused by our proximity to the sea.—Ed.] Our dahlias were fine, but we didn't care much for the cactus type.

The choice hybrids of delphinium were excellent. Plants raised from seed sown in March flowered all summer and till they were cut by frost. The colors were lovely and included all shades of blue. They are so easily raised from seed and give such a lot of flowers that we intend to raise a large number of them next year. *Pyrethrum uliginosum* raised from seed sown in March also flowered all summer long.

Some of the verbascums (mullcins) were fine, notably *V. phlomoides*, which gave us a flower spike over six feet high; and *V. pannosum*, one three feet high.

The platycodons raised from seed sown in March were also grand, and flowered all summer long. They included *grandiflorum*, blue and white; and its dwarf form, *Mariesi*, also blue and white.

We would have had a nice show of *Anemone Japonica*, but as they were coming into bloom the frost caught and hurt them; but where they were sheltered in the garden they were very nice.

I wish you could have seen that *Clematis paniculata* which runs over the roof of the little cottage (see GARDENING, page 353, Aug. 15, '95), when it was in bloom; it was grand.

PREPARING FOR ROSES.

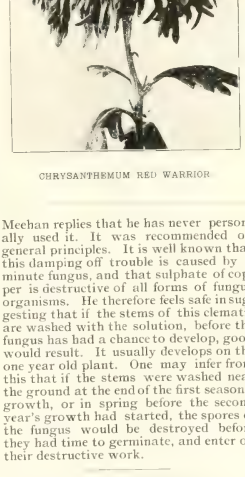
We have never been able to grow good roses in the sandy land here, so I am now busy making five new beds. We are digging out the sand two and a half feet deep and filling up with good surface loam. They are for Tea and H. P. roses. This is outside of the enclosed garden. Although it entails a good deal of work to begin with, I am sure it will pay.

DAVID FRASER,

Gardener to Mrs. John Mayer, Mountain Side Farm, N. J., Nov. 17, '95.

CLEMATIS DISEASE—SULPHATE OF COPPER.

J. L., Waterloo, Canada, desires to know when in spring Mr. Meehan (See page 25 Vol. III of GARDENING) employs sulphate of copper for the prevention of the damping off disease in the *Clematis Jackmani* and how often employed. Mr.



CHRYSANTHEMUM RED WARRIOR.

Meehan replies that he has never personally used it. It was recommended on general principles. It is well known that this damping off trouble is caused by a minute fungus, and that sulphate of copper is destructive of all forms of fungus organisms. He therefore feels safe in suggesting that if the stems of this clematis are washed with the solution, before the fungus has had a chance to develop, good would result. It usually develops on the one year old plant. One may infer from this that if the stems were washed near the ground at the end of the first season's growth, or in spring before the second year's growth had started, the spores of the fungus would be destroyed before they had time to germinate, and enter on their destructive work.

SOME FLOWER QUESTIONS.

A western reader asks the following questions:

"IS THE 'ENGLISH FLOWER GARDEN,' which you recommend in GARDENING, October 1, page 26, included in 'Nicholson's Dictionary of Gardening,' or does one want both books?"

Ans. The English Flower Garden tells how best to use all manner of hardy plants for outdoor gardening the Dictionary describes all plants, hardy or tender in dictionary sequence and style, and although most every genus is also treated culturally, this last is the weakest feature of the book. Have both by all means.

2. CAMPSIDIUM. "I brought it in with my other plants, and set it on the high wall shelf of the conservatory, and it is growing beautifully, but ought it not to go to rest to be ready for work next summer? Three feet of its stem are bare of leaves.

Ans. No, it doesn't need a rest. It is a Chilian evergreen woody climber, and may be allowed to grow at will, only do nothing to coax it into any extra growth. Like most all far-reaching, woody vines, it is apt to lose its lower leaves, the only way to keep it full near the base is to keep it cut in a little.

3. "GREVILLEA ROBUSTA. What shall I do with it? It has been growing vigorously for eighteen months. I want it at its best for porch decoration in summer."

Ans. Let it grow all it wants to, it doesn't need a rest. But if you prefer bushy rather than tall plants of it pinch them in a little. There is nothing to the plant except its pretty fern-like leaves, it doesn't bloom in a small state.

4. 'RHODODENDRON MAXIMUM, would it need the shade of trees? and will it take any soil."

Ans. With you we should advise that it have shelter from the north and west winds, and a slight shade. It should grow in most any soil not impregnated with lime. Use lots of old leaf mould in the soil and not a bit of manure.

CLEMATIS—ROSE—DECUMARIA.

Would *Clematis paniculata* need protection here, should you think? And if so of what sort? Mine did not grow this year at all according to promise. Two shoots of six or eight feet each and no blossoms were all its contribution. It is on a wire trellis with full southern exposure, but with large trees at the east and west. It with several other vines, is in a long box three feet deep, by two or more wide, built to protect them from the encroaching roots of a silver maple and a red or 'Russian" mulberry. The box has rich earth in it and a grape vine and variegated honeysuckle are doing well in it, but a climbing rose Reine Marie Henriette, has been there two summers without growing any. And there is also a *Decumaria barbara* or "American Climbing Hydrangea," which like one mentioned by another of your subscribers has never climbed at all. I have had it three years and can't see that it has grown in the very least. Yet it has quantities of water and the best of soil. X.

South Jersey.

Clematis paniculata is perfectly hardy with you, in fact the old stems and young wood should be quite hardy in southern N. J. But we cannot tell why your plant hasn't behaved better; with us it is a rank-growing vine, and two year old seedlings bloom nicely. Like most all Japanese plants, however, it likes good moist soil. Do you think the earth away down in that box got undu'y dry? The variegated honeysuckle and grape vine will thrive with less moisture than the clematis. Ordinarily, under favorable circumstances the rose Reine Marie Henriette is a fine, vigorous, free-blooming variety and although it isn't reliably hardy in the north it should be hardy enough with you. We are not at all surprised that the decumaria doesn't grow more; although often fine in the south and occasionally so too in New Jersey, north of New York it is hardly worth growing except to

NEW CHRYSANTHEMUM MARION CLEVELAND.

NEW CHRYSANTHEMUM DAYBREAK

spread among or over boulders in a rock garden in good soil. It is nothing like as good a garden vine for us as are the Japanese climbing hydrangea and the schizophragma, both of which grow freely and bloom nicely here.

PANSIES, MILDEW IN SUMMER.

I had very fine German pansies till about the first of July, when they began to mildew, and in a few weeks they were entirely ruined. Can GARDENING give me a preventive or a remedy? My garden is in the mountains of Eastern Oregon, 3,500 feet attitude. Heretofore pansies have grown in the greatest perfection for me. Some were on dry ground, some on moist; all were irrigated and all mildewed alike. W. C. C.

Union, Oregon.

It is more surprising to us that the pansies used to do so well with you after July 1, than that they began to fail at that time this year. Here, after June sets in our pansies are apt to get too small to be worth anything, but last spring on account of cool weather and plenty moisture up till midsummer we had fair pansies till near the end of June; and then again, self-sown seedlings began blooming in August, and from the middle of September till into November we had quite nice pansies out of doors. But up in the mountains we would look for a longer season for them. As pansies loves a cool moist atmosphere as well as moisture at the root, if the ground had to be irrigated to moisten it we should think the atmosphere was pretty dry for good pansies. Pansies are strictly fall, winter, and spring blooming plants, the latter more particularly. Take them in the Boston Public Garden, for instance, where in company with polyanthuses, forget-me-nots, silene, daisies, and other spring blooming plants they are used in thousands for spring gardening, by midsummer they are so enervated that the gardener generally clears them away in June and replaces them with something else. Or take it in England where fine pansies are a specialty, the English people admit that they cannot grow as fine pansies as are raised in Scotland where the temperature is lower. In both countries pansies are spring flowers only, that is they are not required to do duty at midsummer; when mildew attacks pansies in summer out of doors it is a good sign that pansy time is over for a season. We know of no preventive. Even should we, by the use of fungicides, destroy the mildew, we could not restore the plants to spring-time energy nor cause them to bear big flowers.

GLADIOLUS WITH THIRTEEN PETALS.

A normal flower of the gladiolus has six petals, a few years ago I grew one with ten petals, this year I had a spike of a fine white seedling that bore nineteen flower buds. The lowest or first flower had ten petals, the second eight, the third and fourth were normal, then came two flowers growing side by side, with eight petals, each, the seventh was again normal, then came a flower bearing thirteen petals above this the spike carried double buds, that is two growing side by side the same as the fifth and sixth. The stamens varied about the same as the petals, the stigma of the first, third, fourth, fifth and sixth flower were normal and all had fertilized ovaries and bore seeds. The styles of the second and eight flowers were double and stigmas infertile, producing no seeds. I hand fertilized with

pollen from other plants all the flowers. None of the seeds seem very plump. I expect to sow the seeds in a hotbed next spring. Does GARDENING know of a better way to grow these seedings than sowing in a common hotbed? Would I be surer of plants if sown in a hothouse or had I best divid- the seed and try both?
Watertown, N Y. D. S. M.

Attempts at doubling are not infrequent among seedlings. The single gladiolus is a beautiful flower; please don't spoil it by doubling it. No, don't sow the seeds in a hotbed. Sow them in a cold frame in April shading the ground with excelsior or lath shadings, and cover with a sash to shed heavy rains. The greenhouse has no advantage over the cold frame.

DAHLIAS.

It was a great comfort to learn from a recent number of GARDENING that dahlias were so poor everywhere this year. For my beautiful single ones that had been a joy the past two years did nothing in spite of careful daily watering. I got some new dwarf and cactus varieties too in the spring, but though they had the best place in the garden they were even poorer; the blossoms fell before they opened almost. One of the dwarfs never blossomed at all. Was the hot summer responsible for all this? X.
South Jersey.

No doubt the hot and unusually dry late summer and fall were very much against the proper development of dahlias, at the same time the moderately cool nights we had, and the liberal waterings should have overcome that drawback. We are rather inclined to think that your dahlias, neighbor like, were infested with dahlia mite. This is an exceedingly minute insect, barely visible to the unaided eye, and infesting the plants in countless numbers, they suck the juices and render the forming flower buds worthless. The plants grow rank enough but they cannot bloom, the buds won't open, but if any do they are usually meagre and imperfect. We have seen an acre field of dahlias in September from which a bushel of good flowers could not be picked. This disease is on the increase. A preventive or cure we do not know. But vigorous and frequent hosing with clean water does good, and no doubt spraying with insecticides would be better. Lots of room, good ground, copious moisture, slight shade and protection from winds are the general conditions under which we have seen the finest dahlias lately, indeed such conditions as one may find in most any cottage garden.

Greenhouse and Window.

GREENHOUSE-AZALEAS-CARNATIONS-ROSES.

I was much interested in the little greenhouse lean-to in GARDENING of November 15. (1). I wish to build one about 30 feet long and 12 feet wide principally for azaleas, of which we have between thirty and forty. If built without excavating the roof covers the windows in the dwelling, but is it considered desirable to excavate? I had planned to have a walk next to the dwelling; then a bench or shelf about five feet wide upon which to stand the azaleas; then a walk, and on front side (2) a bench in which to plant the carnations which have bloomed through the summer out of doors and grow along the cuttings for next season's bloom outside. Will not the temperature required for the azaleas give me fair success with the carnations and (3) as the weather grows warmer in spring won't the cuttings be in shape for bedding out? (4) And for fumigation will it answer if I lay tobacco stems under the carnations? The odor then would not be so likely to enter the dwelling.

I wish to heat by steam as the dwelling will be heated that way, and locate the boiler in one end of the lean-to parted off. Then a steam pump can be used.

In spring when the hybrid tea roses start naturally into growth having been kept dormant in pots through the winter they ought to give a fair amount of bloom before bedding out. Kaiserin Augusta Victoria and La France are very satisfactory in that way and a big bed of Kaiserins would be a feast until frost.
Bath, Maine. F. C. C.

1. AZALEAS will winter and bloom quite well in a sunk or pit greenhouse, that is one sunk three, five or six feet deep in the ground, or up to the eaves, but of course a greenhouse altogether, or at least more above ground is better for them, and this is especially marked when the plants are in bloom and begin to grow in early spring. A deeply sunk house is mostly always damp, when you go into it in the morning in dull winter weather the leaves of the plants are wet all over as if a dew had fallen on them. To avoid this keep the house cool, don't spill a drop of water unnecessarily about the benches or floor, and ventilate in favorable weather. Your arrangement cuts up your house too much, giving you 7 feet of table room, and 5 feet of walk space, unless it is quite necessary to have the walk alongside the wall of the dwelling house we should omit it, and have a 6½ feet wide table at back for azaleas, then a 2½ feet walk, and a 3 feet wide bench in front for carnations. But this is a matter you on the ground alone can decide.

2. CARNATIONS should do well on the front bench if you can keep the damp from settling on them. The same temperature that will do for the azaleas will suit them, that is anything between 35° and 55°, of course the cooler the house is in winter the slower they will be in blooming. Let us advise you to have enough carnation plants in summer so that you can have one lot for blooming out of doors, and another lot getting ready for flowering in the greenhouse in winter. They both may be raised from cuttings at the same time in winter or early spring, and planted out of doors in spring, the ones for summer and autumn blooming should be encouraged to grow and bloom unchecked but those for winter work should be kept pinched in till as late as midsummer, then in August lifted and planted out on the greenhouse bench so that the plants may get thoroughly rooted and into good growth and blooming form before cold weather sets in.

3. CARNATION CUTTINGS.—At one end of the bench have a bed of sand in which you may strike carnations or other cuttings at will. They do not require a high atmospheric temperature, at the same time they enjoy a gentle bottom heat, and to give them this the steam pipes passing under that part of the bench may be boxed up like a cupboard, that will keep the bottom of the bed warmer than the top of it. This is not imperative though.

4. TOBACCO STEMS.—No, don't put the tobacco stems on the bench under or between the carnation plants lest they might stop a free circulation of air from passing through there, also generate damp; but spread them under the benches, or on the benches under the azaleas, or lay some bunches of them here and there on the steam pipes, these should be wetted in the morning, or anytime when the steam heat is on, to render the exhalations from them more pungent and effective.

VINES FOR A PALM HOUSE.

Will you kindly advise me as to the best vines for a palm house. The house is 60 feet long, faces the east and is build against a high brick wall on the west side and south end. It is protected with double glass up to a height of 7 feet, and has a curvilinear roof. Temperature from 60° to 70°. On the south wall there is no direct sunlight. On the west wall there is direct sunlight during most of the forenoon. About 20 vines (for the front) should grow about 25 feet high, and 10 for the walls about 12 feet high. The qualities which I desire most are rapidity of growth, cleanliness, hardiness, and continuance of bloom if compatible with the other qualities. The nasturtium Fireball seems to possess many of the accomplishments. R. M. W.
Ontario, December 4, 1895.

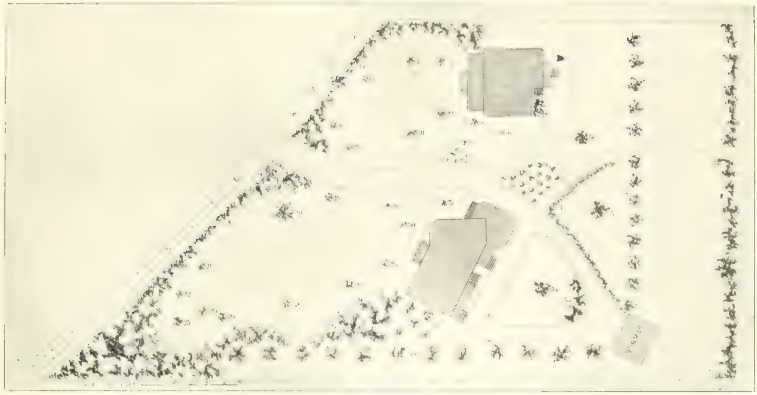
We assume that the vines are to be planted out right in the ground, and level, and not in boxes or pots set up on stages. A vine that will grow 12 or 25 feet high if given full freedom, spread out to cover 12 or 25 feet of side room, thus it will be seen that vines must be restricted in growth and confined to certain limits. And the more a vine is restricted in side room the more it runs to length and the barer the stem is apt to be. To rectify this needs care and attention. The double glazing of the sides of the house would be detrimental to such plants as Fireball nasturtiums. We should advise you to try harder-wooded sorts, plants of more permanent duration. As regards cleanliness, all vines, once they get infested with scales or mealy bugs, are very dirty plants, and some, as passion flowers and stephanotis, particularly so. And for this matter of dirtiness alone, in several large conservatories we know the vines have been rooted out altogether. But where you have city or hydrant water and a good pressure, with a well directed hose and nozzle you can drive the mealy bugs, aphis, thrips, and red spider from most anything.

The vines we world suggest are allamanda, aristolochia, asparagus, bignonia, bougainvillea, cereus, clerodendron, ipomœa, nepenthes, passiflora, quisqualis, stigmaphyllon and thunbergia. Of these the allamanda, bignonia, clerodendron, passion flower, quisqualis and thunbergia will easily make 25 feet vines, but of course they will need time and there is danger of them getting barestemmed.

Allamanda grandiflora, *nobilis*, and *Schottii* are three fine species with large, yellow flowers, any one is good. The newer *A. Williamsii*, which makes a fine bush plant might be trained as a vine for the low or wall side.

Aristolochia elegans is one of the most floriferous and beautiful, but if something odd is wanted try the recently much-talked of *Sturtevantii*.

Asparagus plumosus makes an elegant pillar vine for foliage only; its flowers are insignificant. So would *A. tenuissimus*,



TWO PLACES LAID OUT AS ONE

but *plumosus* is much the better one of the two.

Bougainvillea glabra and *B. speciosa* are show plants completely covered with lilac-rose flowers (or floral bracts) in early spring In time they will run 12 to 20 feet high. And the new variety *Sanderiana* will make a fine column 10 or 12 feet to top.

Bignonia venusta, orange-red flowers in fall and winter is a magnificent vine; and so is *B. Chamberlaynii*, which has a profusion of yellow blossoms in summer.

Cereus triangularis, the largest flowered of our night blooming cacti, grows easily to 20 feet in height, luxuriates in a palm house, and blossoms abundantly every year, the flowers being 14 to 15 inches wide.

Clerodendron Balfouri grows rapidly, is of a cleanly nature, and you can have it in bloom every day in the year. When its roots are in a box, and under complete control so far as keeping moist or dry is concerned, by a little timely manipulation in the way of keeping them dry to rest them, and pruning, we can have a great flood of bloom at any particular season of the year we wish.

Ipomœa Horsfalliæ with rose-purple flowers, and its white flowered form *Thompsoni* make fine fall or winter blooming vines in a warm house. *I. paniculata* may be had in bloom most all the year round. *I. Leari* is often used indoors too, and fine it is, but its vines are a little weedy.

Nepenthes distillatoria is the common pitcher plant, and in a warm shaded corner it will make a vine of 10 or 12 feet easy and add variety and interest to the house. To begin with though it is slow glowing, and it would be better to have its roots confined in a pot or box than allowed the freedom of the bed.

Passiflora racemosa with drooping clusters of red flowers makes an excellent indoor vine in the lightest part of the house. The Granadilla vine (*P. quadrangularis*), of rank growth, is often grown in palm houses, but it is coarse. The fruit however, would be interesting.

Quisqualis Indica, the Rangoon Creeper, is a capital shrubby vine for such a place. It will run 10 to 30 feet up to get to the light. It bears a profusion of long-tubed, brownish fragrant flowers, which although not showy, are quite pleasing.

Stigmaphyllon ciliatum, the Brazilian golden orchid vine, will twine 10 or 12 feet high, but no more with certainly, and bear a profusion of oncidium-like yellow blossoms. It loves the light.

Thunbergia laurifolia is an Indian species of vigorous nature and the easiest cultivation, and at this season of the year bears a great profusion of large, showy, bluish flowers.

A FLUE HEATED GREENHOUSE.—Is it possible to grow flowers successfully in a lean-to greenhouse heated with a flue? asks one of our readers. *Ans.* Indeed it is, and we speak from practical experience. But we do not recommend flues. Any deficiency in the flue by which gas may leak from it will cause serious trouble to your plants Flues are easily built, easily heated, easily stoked, and they need no deep furnace-pit, and their first cost is less than that of hot water, but the difference is not so great that it should be considered. By all means put in a hot water heater.

Landscape Gardening.

TWO SMALL PLACES TREATED AS ONE.

It is now quite common in suburban neighborhoods to do away with all fences and make one continuous lawn in front of the houses of an entire block. I am opposed to this except for small lots of less than one hundred feet frontage. The inclosure need not be a fence, a wall or better still a hedge may be used. The continuous lawn plan does not permit grounds to have individual character or privacy and I think privacy is as desirable on a lawn as it is in the living rooms of the house. Sometimes, however, the grounds of two or three small places may be combined and treated as one place and fine landscape effects obtained which would not be possible with the separate places. The present plan made for Mr. W. J. Butttfield of Plainfield, N. J. illustrates this very well.

EXPLANATION OF PLAN.

1. Edge of woods back of grounds.
2 and 33. Rows of old Norway spruce, twenty feet high which were allowed to remain, as they protected the grounds on the north and west, but the regularity of their outline was broken by additional planting.
3. Purple beech.
4. Border for H. P. roses, herbaceous plants and spring-flowering bulbs.
5. Group of Japanese maples, retinosporas and specimen shrubs, ground carpeted with Hall's and golden honeysuckles.
6. *Magnolia conspicua.*
7. *Sciadopitys verticillata.*
8. *Magnolia parviflora.*
9. Shrubs.
10 *Abies concolor.*
11. Nordmann's fir.
12. Colorado blue spruce.
13. European beech.
14. Massed planting of shrubs, evergreen and deciduous.
15. Cut leaf birch.
16. *Paulownia imperialis.*
17. *Abies concolor.*
18. Mugho pine.
19. Nordmann's fir.
20. Massed planting of deciduous and evergreen shrubbery.
21. Fern leaved beech.
22. *Magnolia Lennei.*
23. Japanese snowball.
24 Specimen rhododendron.
25. *Picea alba cœrulea.*
26. White-leaved weeping linden.
27. *Magnolia stellata.*
28. *Cedrus Atlantica glauca.*
29. Weeping hemlock.
30 S ecimen rhododendron.
31. *Magnolia Soulangeana.*
32. Group of white birch.
34. *Philadelphus* and *Weigela candida.*
35. Pin oak.
36. Tulip tree.

J. WILKINSON ELLIOTT.
Pittsburg, Pa.

GARDENING

WILLIAM FALCONER, Editor.

PUBLISHED THE 1ST AND 15TH OF EACH MONTH

— BY —

THE GARDENING COMPANY,

Monon Building, CHICAGO.

Subscription Price, $2.00 a Year—24 Numbers. Advertising rates on application.

Entered at Chicago postoffice as second-class matter.

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All communications relating to subscriptions, advertisements and other business matters should be addressed to The Gardening Company, Monon Building, Chicago, and all matters pertaining to the editorial department of the paper should be addressed to the Editor of GARDENING, Glen Cove, N. Y.

GARDENING is gotten up for its readers and in their interest, and it behooves you, one and all, to make it interesting. If it does not exactly suit your case, please write and tell us what you want. It is our desire to help you.

ASK ANY QUESTIONS you please about plants, flowers, fruits, vegetables or other practical gardening matters. We will take pleasure in answering them.

SEND US NOTES of your experience in gardening in any line: tell us of your successes that others may be enlightened and encouraged, and of your failures, perhaps we can help you.

SEND US PHOTOGRAPHS OR SKETCHES of your flowers, gardens, greenhouses, fruits, vegetables, or horticultural appliances that we may have them engraved for GARDENING.

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A PURE WHITE TIGER LILY is occasionally found growing wild in Japan, but it is considered very rare. So says *Gardening World*.

THE FRONT PAGE ILLUSTRATION in GARDENING of November 15 is too grand to pass by without notice. It takes every effort on the part of those of taste to bring so tasteful an embellishment to the front. I have long advocated just such a decoration about our suburban homes, and I am glad to see that you and your correspondents lean so strongly in the same way. Wherever you find these beautiful home adornments, plants, vines, arbors and the like, there also will you find the gem of the human race.

JAMES STEWART.

Elmwood Nursery, Memphis.

PLEASE mention GARDENING when writing to advertisers.

PEPPER FOR MELONS, ETC.—A correspondent of the *Journal of Horticulture* says; "For years I have preferred pepper to sugar for melons and strawberries. A little cayenne pepper mixed with the pounded loaf sugar brings out the flavor of the strawberry wonderfully. Black pepper with bananas is also well worth trying."

SWEET CORN.—In the Report of the Maine State College, just at hand, we find that the following varieties of corn were sown May 27, and ripened fit for use as follows: Early Cory, Aug. 14; Dreer's Extra Early, August 15, Marblehead, August 15; Early Minnesota, August 25; Narragansett, August 25; Perry's Hybrid, August 28, Crosby, September 1, Moore's Concord, September 8, Nonesuch, September 19; Stabler Pedigree, September 19.

A NEW VARIEGATED LEAVED CELERY is one of the "good" things reported from Europe. Well, we don't want it. It may be variegated enough; the potato was variegated, and we have seen variegated-leaved turnips and other vegetables, but what on earth are they good for? As food plants are they any better than the green-leaved sorts? As ornamental plants who wants them? Now we believe in novelties, and we uphold the persistent efforts of nurserymen and florists in obtaining them, but we draw the line at humbug.

A NEW DEPARTURE IN HORTICULTURE in London is announced in a cable despatch to the New York *Sun*, December 7. It says "the solution of the problem of how to produce flowers out of season has been found, not in the process of forcing, but in just the opposite direction, by retarding natural growth. This is accomplished by the simple and inexpensive process of refrigeration. It is especially successful with lily of the valley, and also works well with deutzias, *Spiræa Japonica*, the ordinary lilac, and Ghent azaleas" and so on. But the correspondent admits "I have a suspicion that the secret is not unknown to the best American horticulturist." In this he is right. All through the World's Fair at Chicago there was an exhibition of lily of the valley in bloom in the New York greenhouse, that was not natural or forced growth, it was retarded growth. This refrigeration process is better understood and more widespread than it is in Europe, in fact our opportunities of practicing it here are as a rule, better than are those of the florists of the Old World.

TROPICAL FROGS IN GREENHOUSES.—We learn from the *Gardeners' Chronicle* that some tropical tree frogs (*Hylodes Martinicensis*), a small species indigenous in the West Indies, have been accidentally introduced into the warm greenhouses at Kew, England, where they are thriving and multiplying. Dr. Gunther says: "It does not spawn in water, but deposits from fifteen to thirty ova on leaves in damp places. After a fortnight the young frogs are hatched in a perfect form, having passed through the metamorphosis within the egg, thus escaping the viscissitudes and dangers to which they would have been exposed during the process of the usual Batrachian metamorphosis. This instance of the acclimatisation in Kew Gardens of the 'Coqui' (as the frog is called in Porto Rico) is unique in Batrachian life at present. I trust that the little guest may long flourish where it has found such a congenial home, and where it usually aids in the destruction of plant eating insects and wood lice, of which I found great numbers in the stomach of a specimen." Why can't we have some of these piping "Coqui" in our big green houses too?

SNOW ON EVERGREENS.—Snow is a capital mulch or protection to bulbs, hardy perennials, pegged down roses, berry canes and vines that have been buried over winter, and also over the roots of trees, shrubs and vines. When it gathers in heavy masses over the tops or branches of evergreens it is apt to do mischief. In the case of firs, spruces and pines the branches are apt to bend with the weight of the snow on them and let the snow fall off without hurting them. At the same time, in the case of fine garden young trees it is well to take a long bean pole, wooden rake or something of that sort and immediately after a heavy fall of snow and while it is still fresh and soft, go out to the trees and shake the branches to remove the heaviest of the snow. This is a safeguard against the branches being broken, or misshapen by being weighted down so long by the snow. In the case of such evergreens as yews, junipers, arbor vitæ, retinosporas and box that are pretty densely branched a heavy fall of snow is apt to lodge on them, spread their branches apart, may be break them, and injure them permanently, for branches so spread apart and kept in that way for some days seldom return to their former symmetry. Anticipating this, before the winter set in we should have taken some stout cord as rope yarn and tied the main or inner branches in place so that a snowfall could not displace them. If this has been neglected, do it now, for most of the winter is ahead of us yet. But tying is not enough, whenever a fall of snow comes be sure you shake it off of these evergreen bushes, lest it do them harm. The same with thickly branched rhododendrons.

CHILDS' GLADIOLI.—The London *Garden* of November 30 has a colored plate, true to life (as everyone of *The Garden's* plates are) of Mrs Henry Ward Beecher and Ben Hur varieties of the *Childsii* section of gladiolus. The bulbs of these and several other varieties had been sent to Mr. Robinson, the editor, to grow and test, and the plate is of the flowers of Mr. R's own grown plants. He speaks in high praise of them. And they deserve it, for the named varieties of them are grand. This reminds us of a bitter disappointment we had this fall. When his gladioli were at their best Mr. Childs sent us 164 spikes of his finest named varieties, and some that are still unnamed. Their size of blossom and substance, and the brilliance, purity and softness of color in the varieties were extraordinary. They were too many and beautiful to hide upon the table of our sanctum, so we arranged them according to kind and color exhibition fashion in a room in the old farm house (see its picture in GARDENING, September 1, 1893) and invited our neighbors to see the display. And we had the flowers photographed for GARDENING, but unfortunately when the negatives were being taken to New York they got broken. Among the visitors who saw them here was Mr. G. W. Oliver, of the U. S. Botanical Garden, Washington, who stopped over here on his way home from a tour of the great gardens of Europe, and he frankly admitted that neither in Europe nor in this country had he ever before seen gladiolus to equal them. In commenting upon these flowers several ladies

A NEW PUMPKIN FROM MALTA

particularly fancied some of the smoky purplish colors, because it was the fashionable color. Well, while we knew nothing about what was fashionable in colors, our taste differed from theirs, for we preferred the pink, orange, rose and purer tints, we don't like the smoky shades.

LILY OF THE VALLEY PIPS THAT WERE FROZEN.—A correspondent sent to a florist for some of these pips, and when he received them "they were frozen stiff in the box," and he was very angry and wrote severely to the florist. The latter referred him to us. Samples of the "frozen" pips sent us show A1 crowns in first rate condition. The frost didn't hurt them in the least, in fact we always see to it that our lily of the valley crowns are pretty well "frozen" before we bring them into the greenhouse to force them, they start to grow ever so much better for it and show less tendency to become abortive than they would were they kept free from frost.

Orchids.

ORCHIDS, YOUNG GROWTHS DAMPING OFF.

A reader has a flue-heated greenhouse, and among other plants in it are some orchids. These seemed to make nice growth and did well until recently when, notwithstanding the greatest care in watering the young growths and flowers rotted out, and this is particularly noticeable in the cypripediums.

Mr. Wm. Mathews, the orchid specialist of Utica, N. Y., answers as follows:

"It is quite possible to grow orchids in a house heated by a flue provided the flue is properly constructed and does not emit that death dealing gas so often found with this system of heating. I have grown *Cypripedium insigne* and *C. Lawrenceanum* and have cut thousands of blooms, having had at one time 1000 plants of *C. Lawrenceanum* and I do not remember ever losing a bloom in that way. *Lawrenceanum* produces two crops of flowers each year with me. I grow them in sphagnum alone with plenty of drainage and give them quantities of water, in fact I never attempt to give them rest and I keep them and all the eastern cypripediums in pretty strong heat. We often get two flowers on a scape. I can give no other reason than that the flue has a leak somewhere, and if this is so it cannot be repaired any too quick. I have grown excellent plants in flue-heated greenhouses, yes, plants much more delicate and harder by far to grow than orchids but those flues did not leak. As this case presents itself I should certainly recommended your correspondent to make a thorough investigation, and ask him to report progress to you, for I should like to hear about it again.

"We have in bloom some plants of *Cattleya labiata* that have been retarded and some of *C. Trianæ* that have been coaxed a little, some sprays of *Vanda cœrulea*, lots of cypripediums and a goodly quantity of *Lælia anceps alba* and anceps in variety, all doing extra well this year. I would just like you to see our house of cattleyas, it is 185 long by 16 feet wide on the benches and we have a lot of fine plants overhead as well."

Utica, N. Y., December 6, 1895.

ORCHID NOTES.

Here with us all of *Cattleya Mossiæ* and *Lælia purpurata* have finished their growths. Care must be taken not to wet the last named much overhead, as the growths often damp off in winter. We expect it to bloom next May; if forced it produces a weak second growth. Orchids which are coming into bloom need an increased supply of water. The following kinds are now in bloom on this place: *Cattleya Percivalliana, Oncidium varicosum Rogersii, O. tigrinum, Angræcum Leonis, Cymbidium giganteum*, that fine old reliable orchid *Cypripedium insigne* and its variety *Maulei, Lælia autumnalis* and *L. anceps*. This last named does well on blocks, but better in shallow baskets. The white variety, *alba*, is shyer in blooming. We have a fine display of *Vanda cœrulea*; it is greatly liked for bridal wreaths. *Dendrobium Phalænopsis Schroderianum* has been in bloom over two months and shows no sign of stopping. It requires the warmest house and does best while in active growth suspended in shallow baskets and in a moist atmosphere.

Baronald, N. J. WM. FITZWILLIAM.

The Vegetable Garden.

A NEW PUMPKIN FROM MALTA.

While driving one day in February of this year in the island of Malta, my attention was attracted to what I then supposed to be a squash, on the stand of a roadside vender. Purchasing the seeds I brought them home with me and grew them at my country place at Greenwich, Conn., the past summer, giving them ordinary field culture only. They were planted several weeks later than they should have been, and the season, in consequence of the prematurely cold snap we had early in October, proved rather short for them. It turned out to be a remarkable pumpkin. The vine is strong and vigorous, with large mottled leaves, and the fruit sets much more thickly than the ordinary field pumpkin, besides, it averages very much larger. Its characteristic appearance, both cut and uncut, is shown in the illustration I send you. The two pumpkins at the back, and the one cut, weighed about fifty pounds each, a month after they were taken from the vine, the one in the center slightly less. They are dark yellow in color, often very prettily covered with a green tracery as shown in the upper left hand figure. The meat is solid, unusually thick, and dark orange color; the seed cavity comparatively small. It makes uncommonly rich pies, and stock appear to eat it greedily. The quantity of seed produced is small for so large a pumpkin; the entire amount taken from the four pumpkins in the illustration, does not quite fill a quart measure.

It is possible that this pumpkin may prove a decided improvement upon that usually grown throughout the country chiefly for stock purposes, and that its merits may be thoroughly tested, it will give me pleasure to send a few of the seeds to any one requesting them. As I have saved but a limited quantity, parties applying for them, if they do not receive them within a reasonable time, will kindly consider that the supply has been exhausted, without further correspondence. WM. H. S. WOOD.

New York, December 4, 1895.

CELERY-LETTUCE HOTBEDS.

The following questions are asked by C. D. J., Jacksonville, Ill.

1. BLEACHING CELERY.—I can raise celery all right but fail in bleaching it. You know there's a big difference between book bleaching and bleaching by a man who does the work himself, and this is why I come to GARDENING.

Ans. Non-bleaching is caused by not starting in time The inner or best bleached leaves complete or make their growth after the bleaching process begins, in earthing up green "stemmed" celery to bleach it, we don't mean to whiten the leaves that are already green, but rather prevent the inner or heart leaf stalks from ever getting green. For "summer" celery plant in beds of five rows each, the rows ten inches apart and the plants four to five inches asunder in the rows, but the earth must be very rich, and kept soaked with water. When the plants are a foot high, set a board on edge on the outside of but close up against the outside rows, fastening it there by tacking it to pegs or stak s. This causes the plants all to grow up together in a thicket, bleaching themselves. For fall celery, bleach in the same way, or if your plants are in single or double rows, draw a little earth to them with the hoe, then set a board up against them on both sides, throwing some earth against the boards to hold them up. Do this late in August or early in September. For winter celery, use boards about the middle of September. Banking with earth will do very very well for main or late crop, but the celery isn't so spotless by it as when whitened with boards. The contact of the earth in earthing up giving a more nutty flavor to the celery than the boards do is imaginary only, it is simply a case of how effectually the light is excluded. Even the self blanching varieties if not boarded or earthed up, no matter how white their hearts may be, will be bitter or stringy if not bleached by excluding light.

2. LETTUCE IN GREENHOUSE.—"I grow the Black-seeded Simpson and white Tilton's Star, and like them both, but want a better."

Ans. We use the smaller white-seeded Tennis Ball, and the Boston Forcing.

3. "What is a good manure for lettuces? How would ground bone and stuff from the slaughter house do for them?"

Ans. For greenhouse purposes we would prefer loam well enriched with finely rotted manure, lettuces like manure. For outdoor crops besides rotted manure, Sempers gives the following per acre:

Nitrate of soda	100 pounds
Sulphate of ammonia	300 "
Dissolved bone meal	300 "
Dissolved bone black	330 "
Muriate of potash	100 "
Sulphate of ammonia	200 pounds
Dissolved bone meal	100 "
Dried blood	100 "
Dissolved bone black	200 "
Muriate of potash	100 "

4. MAKING A HOTBED. "Some make them 6 feet wide, some 12 feet, which is best?"

Ans. We prefer the 6 feet arrangement, that is hotbeds made for a row of 6 feet long sashes, and we believe this is what is practiced by most private and market gardens. If the manure is put into pits, these are 6 feet wide and with a lining against the frame above ground, but if altogether above ground then the manure heap should be 8 or 9 feet wide, to give room enough to place the 6 feet wide frame on and allow of a bank-lining of hot manure against its outsides up to the brim. But, *sub rosa*, an outdoor hotbed in winter—before February—in the northern states for any crop whatever, doesn't pay. Greenhouses can now be built so cheaply and good and heated so easily, that winter hotbeds are very little used.

MUSHROOMS.

B. W., New York, asks (1). "Is the cultivation of mushrooms a paying business? (2). Can a young man going into it make a living out of it on the start? (3). Can they be produced in the open field with any chance of success?"

Ans. 1. Under favorable conditions, yes. The supply of good mushrooms does not equal the demand for them. Poor mushrooms are poor stock. 2. Much depends upon the man and his conveniences, materials, market, etc. But be very careful, for there are many snags in the way, and even old cultivators not infrequently have complete failures. 3. In a general way, no. Of course one can raise mushrooms out of doors easy enough, but not in large quantity or with certainty, besides there is no money in outdoor mushrooms.

Roses.

EXHIBITION ROSES.

A correspondent of the English *Gardeners' Magazine* gives an analysis of varieties of hardy roses "compiled from twenty stands of single blooms staged in the chief amateur classes at fourteen of the leading rose shows of the year commencing June 20 and concluding with August 6.

No.	Name.	Times Exhibited.
1	Mrs John Laing	20
2	Alfred K. Williams	19
3	Gustave Piganeau	18
3	Ulrich Brunner	18
3	Marie Baumann	18
4	Horace Vernet	17
4	Her Majesty	17
5	Francois Michelon	16
5	Susanne M. Rhodocanachi	16
6	Caroline Testout	15
7	Earl Dufferin	14
7	Charles Lefebvre	14
7	Beauty of Waltham	14
8	Marchioness of Londonderry	12
8	Prince Arthur	12
9	Etienne Level	11
9	Comtesse d'Oxford	11
9	Comte Raimbaud	11
10	Auguste Rigotard	10
10	Duchess of Bedford	10
11	Prosper Laugier	9
11	Countess of Rosebery	9
12	Madame Victor Verdier	8
12	Marshall P. Wilder	8
13	Pride of Waltham	7
13	E Y Teas	7
13	Madame Delville	7
14	Marchioness of Dufferin	6
14	La France	6
14	Madame E. Verdier	6
14	Charles Darwin	6
14	Exposition de Brie	6
15	Comtesse de Nadaillac	5
15	Duke of Edinburgh	5
15	Alfred Dumesnil	5
15	Xavier Olibo	5
15	Danmark	5
16	Heinrich Schultheis	4
16	Dupuy Jamain	4
17	Marie Verdier	3
17	Gen. Jacqueminot	3
17	Barthelemy Joubert	3
17	Mrs. Sharman Crawford	3
17	John Stuart Mill	3
17	Jean Ducher	3
17	Merveille de Lyon	3
17	Louis Van Houtte	3
17	Madame Rapalet	3
17	Ernest Metz	3
17	Gabriel Luizet	3

ROSA RUBRIFOLIA.

The red leaved rose seems to be but little grown, why I cannot imagine. Its position in the garden is that of a shrub and not a rose for cut flowers. When we take into consideration the fact that the foliage of a shrub is with us the whole season through, while its time of flowering is limited, attractive foliage is an essential quality of a plant, and certainly there is no hardy shrub in cultivation that can exhibit more charming tints than this rose. Nicholson says of it, "leaflets ovate, toothed, tinged with red, very glaucous, wrinkled, opaque, stems deep red or purple, covered with pale bloom, etc." It forms a bush six feet high and nearly as broad, and at a distance the glaucous shading of its numerous small leaflets present an olive tinting that enlivens the surrounding landscape if in harmony. At a closer view this tinting is deeper in its coloring, and seems suffused with pink. The deep red of the new stems showing through the "pale bloom" is partly accountable for this. It is a very profuse bloomer and the small, single wild rose flowers are attractive. These are followed by bright red hips in such numbers as to produce a marked effect. They remain on the bush nearly all winter and my specimens are now a sight to behold, standing in a foot of snow and completely covered with berries. This rose is a native of Europe and very hardy, I have never protected it and have never had even a tip injured in winter—nor does it seem to have any insect enemies. As a shrubbery rose it is a fitting companion to the Japanese *Rosa rugosa*. W. C. EGAN.

ROSES, MULCHING THEM WITH PASTY MANURE.—Before our advice about not to do this appeared, page 86, December 1 issue, A. B. O. of Canada had already laid down his bushes and covered them over with just that kind of manure and he now fears the result. To remove the mulch would be awkward, as it is now covered a foot deep with snow. *Ans.* The roses are all right and so long as the frost is continuous and there is snow on the ground they will remain safe; and even after the snow goes the manure may be leached and tempered enough that it won't hurt the bushes. It is sudden freezing and thawing in the case of pasty manure that do the trouble. When the snow goes we would draw the mulch aside a little from over the crowns of the plants and draw a little loose mulch of litter, leaves or anything else over the bared spots, or throw a little loam or sand on them. But we don't apprehend any trouble, the winter is too steady there.

The Fruit Garden.

PEACH AND PLUM TREES FOR BATH, MAINE.

F. C. C. asks "Is the Crosby peach any hardier for our latitude than any other? Does the curculio attack the fruit of Moore's Arctic plum as readily as other varieties?"

Ans. No peaches are hardy enough for the Kennebec Valley (where I was born and bred). The curculio bothers Moore's Arctic as badly as any other plum; but as they ripen very early, and set very full of fruit, the grower will usually get a good crop. I have a row of them 500 feet long in front of my grape vines, which are trained on a tight fence 8 feet high; and both both plums and grapes do very well, but some of the Russians are much much larger and better than Moore's Arctic. These Russian tree fruits are showing themselves a monstrous boon to our section. With these I can grow as fine tree fruits as anywhere else in New England.

T. H. HOSKINS.

Newport, Vt., December 6, 1895.

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Bowker's Flower Food.

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A small spoonful for a 2-inch pot.
A larger spoonful for a 4-inch pot.
Enough for 10 plants 3 months, 25c.
Enough for 30 plants a whole year, 50c.

We pay the postage and send a book on "Window Gardening" free with each package.

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NOT A SECKEL PEAR.—G. B. F., Columbia, Conn., bought some Seckel pear trees a few years ago and planted them in his garden. They bore fruit this year, the pears being small, russety, late, and assuredly not Seckels. He sent us two of the pears for identification. *Ans.* We are unable to identify the variety with certainty, but think it must be Winter Nelis. After this we hope our correspondent will get his fruit trees from reputable nurserymen. Although the Winter Nelis is a fairly nice pear at this time of year—it bore fine at Dosoris this year—it is very aggravating to buy a particular variety and after waiting in expectancy for some years find that it isn't the kind at all you bought it for.

Miscellaneous.

INTERESTING PLANTS FROM NEW SOUTH WALES.

A friend of GARDENING at Kurrajong Heights, New South Wales, sends us a few seeds of some of the beautiful shrubs of that far-off land, and as there are more of these seeds than sufficient for our needs, our readers are welcome to the rest of them. The kinds are *Telophea speciosissima, Acacia linifolia, Acacia elata, Pittosporum revolutum* and *Pittosporum undulatum*, and he describes them as follows:

"*Telophea speciosissima* or 'Waratah' is the national flower of New South Wales. It is a stout, erect glabrous shrub, 6 to 8 feet high, and blossoms the third year from seed. The flowers are crimson and arranged in dense, globular heads, 3 to 4 inches in diameter, and surrounded by showy bracts 3 inches long. It grows in rocky and sandy soil.

"*Acacia linifolia* is commonly called acacia 'Sally.' In gullies it grows to a height of 20 feet, but on dry ground much less. It bears beautiful yellow flowers in great abundance.

"*Acacia elata* is called here Mountain Hickory acacia. It has a striking general resemblance to the pepper tree (*Schinus molle*) so much grown in California, as regards its foliage and habit. It frequently attains a height of 60 feet, and is one of the most beautiful of all the tree acacias. Its bark is rich in tannic acid.

"*Pittosporum revolutum* is a flowering shrub, the fruit a capsule which when ripe gives the plant a remarkable and unique appearance.

"*Pittosporum undulatum* is a tree of 12 or 15 feet, and has handsome foliage and large clusters of white very fragrant flowers. It makes a good hedge plant."

These plants are not hardy here, but they are easily grown in a cool, light, airy greenhouse, in pots or tubs. There may be some difficulty in raising them from seed though. Pour hot water on the acacia seeds and let them stay in soak all one night, then sow them in a pot or box of light soil, cover the soil with a little moss or excelsior to keep it shaded and damp till the seedlings appear. They won't all germinate at the same time; in fact some of them may lie in the ground for months without moving.

THE GUN SHOT PLANT—WHAT IS IT?

E. L. P., Plymouth, Wis., writes: "Can you tell me the name of the plant which when its flower bud opens makes a loud noise like the report of a gun shot? A lady friend of mine knew this plant in Europe, and she calls it in the German

[CONCLUDED PAGE 110.]

HORTICULTURAL BOOKS.

We can supply any of the following books, postpaid, at the prices given.

HOW TO GROW CUT FLOWERS (Hunt).—The only book on the subject. It is a thoroughly reliable work by an eminently successful practical florist. Illustrated, $2.00.

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MUSHROOMS: HOW TO GROW THEM (Falconer).—The only American book on the subject, 29 illustrations. Written by a practical mushroom grower who tells the whole story so tersely and plainly that a child can understand it. This book has increased mushroom growing in this country three fold in three years. $1.50.

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THE ROSE (Ellwanger).—The standard work on roses in this country and written from a field affording the widest experience in practical knowledge and opportunities for comparison, and where every variety of rose ever introduced is or has been grown. $1.25.

THE BIGGLE BERRY BOOK (Biggle).—A condensed treatise on the culture of strawberries, raspberies, currants and gooseberries; with truthful colored illustrations of 25 varieties of strawberries, 8 raspberries, 5 currants, and 5 gooseberries; 35 illustrations in black and white; and portraits of 33 of the most noted berry growers all over the country. 50 cts.

THE PROPAGATION OF PLANTS (Fuller).—An illustrated book of about 350 pages. It tells us how to propagate all manner of plants, hardy and tender from an oak to a geranium, and describes every process—grafting, budding, cuttings, seed sowing, etc, with every manipulation pertaining to the subject It is the voice of practical experience, by one of the most brilliant horticulturists living. $1.50.

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THE GARDEN'S STORY (Ellwanger).—A delightful book po traying the beauties and pleasures of gardening in the most fascinating style; it is eminently practical, and useful too, f r the author loves, knows and grows the plants he writes about; and has a field for observation and practice second to none in the country. Price $1.50.

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For twenty-five cts., or thirteen two-cent stamps (which is not half the Catalog price), I will send five packets Choicest Seeds, a full sized packet of each, viz.: Giant Japanese Morning Glories, put up from a mixture of nearly 300 varieties; German Pansies, of largest size, over 50 distinct sorts and an endless variety of rich color tints and marking, mixed; New Yellow aster, Golden Crown, the only real Yellow Aster; Large-fl Phlox, 30 vars., mixed; Double Asters, over 100 vars., mixed. Five of the above collections for $1.00. For fifty cents, I will send 15 packets, the above and 43 vars Eckford's Sweet Peas; Variegated Japanese Hop; Mammoth Brazilian Morning Glory; Improved Double Poppies, New Double Fairy Zinnias; 18 bright colors, little beauties, Dbl Portulacca; 10 vars Japanese pinks, New Giant Yellow Hibiscus; Snapdragons; Chrysanthemums. These are not "cheap" seeds such as often put in collections, but all are of the highest quality, FEW EQUAL NONE BETTER, just the same strains on which I have been awarded OVER THIRTY FIRST PRIZES BY THE MASS HORTICULTURAL SOCIETY. My catalog of new and choice Seeds, Rare Aquatic Plants, Roses, Chrysanthemums and other plants free with each order. Mention GARDENING.

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We now offer **NIVEA**, a sport from and identical with the above in all respects except color, which is white. When grown in strong sunlight, or allowed to get too dry, the flowers will be suffused with delicate rose, which adds much to its beauty, giving it an apple-blossom appearance. We are using quantities of this almost daily in floral designs, its elegant panicles giving a grace that is unique and beautiful. The plant grows rapidly, and when well stopped back soon makes shapely plants, literally covered with graceful panicles of the most delightful rosy shade or pure snowy whiteness. It is just the plant for a present or table decoration. Extra strong plants of both Nivea and Rosea at annexed prices. We guarantee plants to arrive in good condition. Extras added to all orders of one dollar when sent Express, and guarantee safe arrival in good condition; if ordered by Mail add 5, 10, 15 and 20 cents extra per plant to prepay postage.

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It blooms in large clusters, with from thirty to fifty flowers in a cluster, each a bouquet in itself, the clusters shooting out from each joint, covering the vine its entire length with a solid mass of the most beautiful perfectly-shaped miniature crimson roses; full description of this *Superb Rose* and a beautiful painting of it made from nature by a celebrated artist, showing a plant in full bloom also a spray of the flower will be found in "*Choice Selections in Seeds and Plants.*"

Price, strong young plants, 30c. each; $3.00 per doz. Extra size plants, 50c. each; $5.00 per doz.

This is only one of the many good things that are described in "*Choice Selections in Seeds and Plants*," which is just issued from press. The book is artistic. It is very complete, and will be found of particular interest to all lovers of choice flowers. It is a comprehensive guide to the purchase of the choicest selections and the most valuable novelties in seeds and plants. Sent free to all who mention GARDENING. *Address*

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language "Aloee." The bud is very large, and when the flowers are open they measure 6 to 12 inches across, and are very fragrant. Can you tell me the English name of it and where I can buy a plant?"

There is a mistake somewhere. The flower buds of any plants we know when they open don't make a loud noise, but the seed pods of many plants when they burst open give a cracking sound, for instance troom or furze in a warm sunny morning in Germany, many members of the balsam and oxalis family, and wistarias. Just for the fun of it get a few wistaria pods now—if you haven't any write us and we'll gladly mail you some—and lay them on the mantel near the stove; when they get well dried they will astonish you by the loudness of the noise or "report" they make in bursting open. What we call artillery plant (*Pilea*) makes a great ado in firing its tiny floral guns, but one can hardly hear the noise; we can see the "smoke" though.

Hoping to solve the mystery we have asked Mrs. W. Seliger, a devoted gardener and talented German lady in Connecticut to help us. She replies:

"With the greatest pleasure I will try to solve the riddle of the plant's name as described, though the report of a gunshot when opening its flowers seems to me greatly exaggerated. In Germany as well as here many flower names are entirely differently in different sections of the country. Our calendula is there commonly called "Mother Golling," and so I might name many more. What is grown under the name of Aloe or 'Brandbaum" (burn-tree) in Germany is our *Aloe vera*, of which I too have a fine specimen (all the Germans regard it with a tender affection), but I have never seen it in bloom, although I remember the plant from my earliest youth on at home. Perhaps the lady inquiring about it means it. I mail a little slip of my *aloe* to you, to be sure about what I mean; my original plant came from Germany. [Your plant is *Aloe vera*. We have had it in bloom. But in all of its actions, flowering and seeding, it is a remarkably quiet succulent.—Ed.] Another possibility is that a night blooming cereus is meant. [The large buds and flowers, beauty and fragrance would fit the cereus, but then it makes no noise in any of its actions.—Ed.]

A THISTLE-LIKE PLANT.

E's neighbor "wants to give me a thistle-like plant which I think is *Onopordon Acanthium*, the Scotch thistle. I would like to plant it near my rockery, to stand alone. Is it biennial or perennial? Will it become a self-sowing weed like a Canada thistle?"

Ans. This onopordon or cotton thistle is when well grown a bold and handsome plant. It is biennial with us. While it will self-sow itself under favorable circumstances there isn't the least danger of it becoming a weed like the Canada pest. Don't take your neighbor's plant, because it is too old to move safely. Get a packet of seeds in spring, sow them where you want them to grow, and when they come up thin them out to one thrifty extra cottony plant. If you want a handsome thistle-like isolated specimen plant try a globe artichoke. It is both handsome in leaf and flower, and you can cut the leaves and use them in indoor decoration to set off big flowers in large hall vases.

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Printed on heavy paper, with broad margins and in the best style of the printer's art. Two numbers, October and November, have already been issued, one sketching a Model City Garden, and the other a Seaside Villa at the water's edge.

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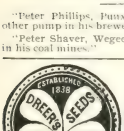

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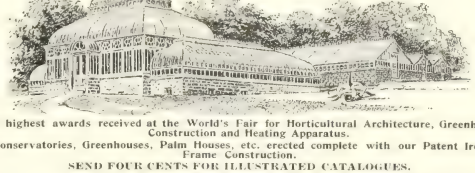

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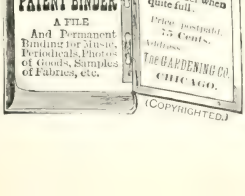

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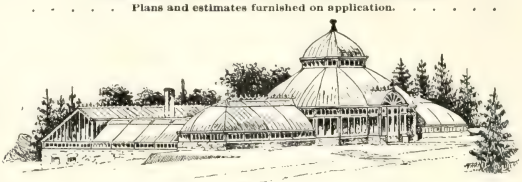

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GARDENING

Vol. IV. $2.00 A YEAR 24 NUMBERS CHICAGO, JANUARY 1, 1896. SINGLE COPY 10 CENTS. No. 80.

THE CILICIAN SILVER FIR

Trees and Shrubs.

SILVER FIR TREES.

The bulk of the evergreen trees grown in our gardens consists of firs, spruces, pines, junipers, arbor vitæ and cedars. All of these genera contain some very beautiful and desirable trees, and too except in cedar some of little worth in ornamental planting. But as the whole subject is too big for one paper, we shall confine our attention at this time to the firs.

Abies is the botanical name of fir, and *Picea* of spruce. In a general way both genera resemble each other; the trees are evergreen, with a tall straight trunk and thickly furnished with branches from the ground up, giving the plants a sharply pyramidal contour. An expert among trees can tell, at a glance, whether a tree is a fir or a spruce, but the uninitiated seldom can. The cones of fir trees grow upright, those of spruces hang downward.

We find that fir trees like good land to grow in, that is, not so much land surfeited with manure, but a naturally good loamy soil such as would grow good potatoes or corn, and good drainage. If your garden is not of such soil, do the next best thing; in preparing the holes to plant the firs in dig them out deep, say

two feet, and wide, say five or more feet, removing the poor earth and filling up with good loam. Give the trees a good start to begin with and in after years they will hold their branches better than they would had they been planted in gravelly or sandy land.

Among the best kinds to plant are Nordman's, Cilician, Cephalonian, and white fir.

NORDMAN'S FIR (*Abies Nordmanniana*), a native of the Crimea and Caucasus, is the most generally planted of all firs, and deservedly, for it is a noble, handsome tree, hardy and easy to grow, and its leaves are of a deep, rich green color. It is one of the latest to, start into growth in spring.

THE CILICIAN SILVER FIR (*A Cilicica*) from the mountains of Asia Minor is also a beautiful object in the garden, and quite hardy with us, but not so in the rigorous west. It starts to grow in spring about three weeks ahead of the Nordman's fir. Our front page illustration engraved from a photograph of one of these Cilician silver firs taken at Dosoris last June will give one some idea of what a fine evergreen tree it makes. This specimen is growing on an open lawn among other trees, and is of perfect form from the ground up, it is 21 feet in height and 65 feet around its spread of branches. It is about nineteen years planted and perhaps twenty-five years old. Now, there is a practical lesson in this tree we wish you to note. When a fir tree gets to be about twenty years old it begins to lose its lower branches, but this tree doesn't show any tendency in that direction; on the contrary its branches lie flat upon the earth, spreading out on the ground, and from the top to the bottom there is not a gap anywhere. Another thing: An ordinary tree has whorls of branches with visible internodes between them, this specimen doesn't show that, and yet its trunk is straight and its leader perfect. How is this done? By holding the leader in check, that is, every year we cut off the tip of it in summer and in spring cut it back to the bud from which we wish it to start again. And don't we trim in the body of the tree to get it so symmetrical? Never. No knife or shears is used on the bodies of these trees. But in early May when they are breaking into growth, if a branch shows a tendency to strike out beyond the others we simply nip out one or more of its young terminal buds. How do we get up there to prune the leader? you may ask. We have a long double or folding ladder, and an extra long handled Waters' tree pruner. This Cilician fir isn't the only tree like this at Dosoris, there are dozens just as fine, though most of them not so high.

THE CEPHALONIAN SILVER FIR (*Abies Cephalonica*) from the mountains of Greece is one of the handsomest of all our evergreen trees and seems hardy and perfectly at home with us. And the form of it called *Appolinis* is just as fine.

THE COLORADO WHITE FIR (*Abies concolor*) from the mountains of Colorado is the most trustworthy of all firs for planting in rigorous climates, as it is both extra hardy and handsome. The Californian forms of the same species are not hardy enough for general cultivation even in the east.

THE SPANISH SILVER FIR (*Abies Pinsapo*) from the Sierra Nevada Mountains in Spain is a very beautiful tree (see illustration on front page, GARDENING, March 15, 1894, of a specimen at Dosoris), but it isn't reliably hardy much north of New York.

THE ALGERIAN SILVER FIR (*Abies Numidica*) is one of our gem conifers. But although it thrives here in a sheltered spot, and without the least injury in summer or winter, it is a tree for whose hardiness north of New York, we will not vouch.

THE BALSAM FIR (*Abies balsamia*) so common in our mountains isn't worth planting in the garden, as it has a predisposition to soon become bare stemmed at the bottom.

THE SOUTHERN BALSAM (*Abies Fraseri*) of the southern Alleghanies is pretty while young, but it too will lose its lower branches after awhile.

THE JAPANESE MOMI FIR (*Abies firma*), is the largest and finest fir tree in Japan, but its behavior here is unsatisfactory; it needs good soil and plenty moisture to grow it well, and even then, after twenty years it will likely be a misshapen plant thin at the bottom.

THE COMMON SILVER FIR OF JAPAN (*Abies homolepis* or *A. brachyphylla* as we used to call it) is a very beautiful plant while young, and well worth planting, but all the specimens of it here show a tendency to become thin-branched at the base as they get old.

VEITCH'S SILVER FIR (*Abies Veitchii*) is a beautiful and desirable species, deep green above, silvery white underneath. To grow it well it needs good ground and plenty moisture. But we fear as years roll by it will act like *A homolepis* as regards thinness.

THE EUROPEAN SILVER FIR (*Abies pectinata*) does not make the fine tree here that it does in Europe. But in a shelter belt on this place there are some trees of it eighteen year old kept headed down to about five feet high, so as not to obstruct a view, and they make a most refreshing dense mass of deep green branches.

THE SAGHALIEN SILVER FIR (*Abies Sachalinensis*) and the Siberian silver fir (*A. Sibirica*), both with bright deep green leaves are handsome species and hardy and well worth cultivating.

There are several other species at Dosoris, for instance *nobilis*, *grandis*, *magnifica*, *subalpina*, but among the above the most desirable are enumerated. The Himalayan *Webbiana* lived for three years with us, but it is much too tender for planting here.

While silver firs are quite desirable for garden decoration, east and south, the Colorado *concolor* is the only one we would suggest for planting north and northwest of Chicago. But bear in mind never to plant silver firs in a city garden, the noxious gases destroy them.

TREES, SHRUBS AND VINES TRIED AT EGANDALE, HIGHLAND PARK, NEAR CHICAGO.

In presenting this list and in endeavoring to classify the subjects as regards their relative hardiness, the fact must be taken into consideration that it gives the experience of only one person in one place, environment and condition of soil, and perhaps a different treatment might produce other results. However that may be, I trust that the list given will be a guide to those in a similar climate who have neither the time nor money to indulge in experimental planting. The list of hardy material includes enough ornamental plants to embellish any grounds, however large. I have on trial several species of the handsome Japanese retinospora, while it is too early to report on them, I am inclined to think that some of the varieties of this ornamental evergreen can be successfully handled here if planted in sheltered positions. In order to make the list complete I have included many things which "we all know are hardy" and some plants have been omitted because they have not yet had a fair trial.

CULTIVATED TREES THAT ARE PERFECTLY HARDY.

Acer dasycarpum var. Weirii laciniatum Weir's cut-leaved silver maple. North America.

Acer Negundo (Negundo aceroides), box elder N. A.

Acer platanoides Norway maple. Europe

Acer platanoides var Schwedleri. Schwedler's maple.

A. platanoides var Reitenbachi. Reitenbach's maple.

A. platanoides var. Lorbergii. Lorberg's maple.

A. platanoides compacta globosa. compact round-headed maple.

A. Pseudo platanus var. Worlei Worlee's sycamore maple. Europe.

A. saccharinum, sugar or rock maple, N. A.

A. rubrum, scarlet or swamp maple, N. A.

A. Tartaricum var Ginnala. Ginnala maple Siberia.

Acanthopanax ricinifolia (Aralia Maximowiczii) castor bean-leaved aralia. Japan

Æsculus Hippocastanum, horse chestnut Asia

Æ. Hippocastanum var rubicunda red flowering horse chestnut, N. A.

Æ. Hippocastanum var rubicunda Brioti Briot's horse chestnut N. A.

Ailanthus glandulosa tree of heaven China

Alnus incana, hoary alder N. A.

A. incana var pendula weeping alder N. A

Amelanchier Botryapium, shad bush June berry. N. A.

Aralia spinosa Hercules' club, N. A.

Betula alba, white birch Europe

B. alba pendula laciniata weeping cut-leaved birch Europe

B alba pendula laciniata Youngii Young's weeping birch Europe.

Caragana arborescens pendula, weeping Siberian pea tree Siberia.

Carpinus Virginica ironwood N. A.

Catalpa bignonioides Indian bean N. A

C. bignonioides var aurea golden catalpa.

C. speciosa hardy catalpa. Western N. A.

C. Teas Japanese hybrid

Celtis occidentalis hackberry, N. A.

Cerasus Prunus, Ed; pendula weeping Japanese cherry Japan.

C. (P) serotina, wild cherry N A

C. Watera.

Cercidiphyllum Japonicum. Katsura. Japan.

Cercis Canadensis, red bud. N. A

Chionanthus Virginica fringe tree. N. A.

Cladrastis tinctoria (Virgilia lutea) yellow-wood. N. A

Cratægus English and American varieties thorns.

Fagus sylvatica var. heterophylla, fern-leaved beech. Europe.

F. sylvatica var. purpurea Riversi, Rivers' purple beech. Europe.

F. sylvatica pendula, weeping European beech. Europe

F. sylvatica tricolor, three colored-leaved beech. Europe.

Fraxinus excelsior variegata, variegated leaved ash, Europe.

Gymnocladus Canadensis, Kentucky coffee tree. N A

Halesia tetraptera, silver bell, N. A.

Koelreuteria paniculata, China.

Liriodendron Tulipifera, tulip tree. N. A.

Morus alba pendula Teas weeping mulberry Russia.

Pavia nana rosea (a small tree which came to me from Holland under this name).

Populus alba var Bolleana Bolles' silver-leaved poplar. Turkestan.

P. monolifera var. Van Geertii Van Geerts' golden poplar N. A.

Prunus Maackii Mayday tree Siberia

Prunus Pissardii Pissard's purple-leaved plum Persia.

Pyrus Malus floribunda Parkmannii, Parkman's tea rose crab, Japan.

P. Malus astrosanguinea red flowering crab Japan

P. Malus spectabilis showy flowering crab Japan.

P. Malus prunifolia pendula weeping Siberian crab Siberia.

Quercus coccinea scarlet oak, N. A.

Q. palustris, pin oak N. A.

Rhus semi alata var. Osbeckii, Osbeck's sumach Japan.

R. Cotinus smoke tree Spain

Salisburia adiantifolia (Ginkgo biloba) maidenhair tree. Japan.

Salix alba var vitellina Britzensis mahogany willow Europe

S. Capræa var. pendula. Kilmarnock weeping willow. Britain.

S. pentandra (laurifolia), laurel-leaved willow Britain.

S. purpurea pendula new American weeping willow N A

S. Petzholdii pendula. Petzhold's weeping willow Europe

S. nigra Petzholdii pendula, black weeping willow N A.

Wisconsin weeping willow.

Sassafras officinale ague-tree N A

Sophora Japonica, tree blue Japan

Tilia Americana linden basswood N A

T. petiolaris alba pendula white-leaved weeping linden Europe

Ulmus Americana, American elm, N. A.

U. montana var. Camperdown, Camperdown elm, Europe, Siberia.

EVERGREEN HARDY TREES.

Picea excelsa, Norway spruce, Northern Europe.

P. excelsa var. Remonti, Remont's spruce, Europe.

P. excelsa var. inverta, inverted spruce, Europe.

P. pungens var. glauca, Colorado blue spruce, N. A.

Pinus Mughus, mountain pine, the Alps.

P. Mughus nana, knee pine, the Alps.

Pseudo-tsuga Douglasii, Douglas spruce, N. A.

Retinospora plumosa aurea var. Fulleri, Fuller's golden retinospora, Japan.

HARDY SHRUBS.

Acanthopanax (Aralia) pentaphylla variegata, five-leaved aralia, Japan.

Amygdalus communis, flowering almond, Barbary.

Berberis vulgaris, European barberry, Europe.

B. vulgaris purpurea, purple-leaved barberry, Europe.

B. Thunbergii, Thunberg's barberry, Japan.

B. Hakodate, Japan.

B. (Mahonia) Aquifolium, Rocky Mountain holly, W. N. A.

Calycanthus floridus, allspice, N. A.

Caragana frutescens, Siberian pea tree, Siberia.

Cephalanthus occidentalis, button bush, indigenous.

Celastrus Orixa, bush bittersweet, Japan.

Callicarpa Americana, N. A.

Clethra alnifolia, sweet pepper bush, N. A.

Clematis Stans, bush clematis, Japan.

Colutea arborescens, tree colutea, Mt. Vesuvius.

Cydonia (Pyrus) Japonica, Japan quince, Japan.

Elaeagnus hortensis var. angustifolia, Japanese oleaster, Orient, Japan.

Euonymus Americanus, strawberry bush, N. A.

E. alatus, winged euonymus, Japan.

E. latifolius, broad-leaved spindle tree, Europe.

Exochorda grandiflora, pearl bush, China.

Forsythias in variety, golden bells, China and Japan.

Hydrangea paniculata grandiflora, large flowered hydrangea, Japan.

Hypericum aureum, golden St. John's wort, mountains of Tennessee.

H. Kalmianum, Kalm's St. John's wort, N. A.

H. prolificum, free-blooming St. John's wort, N. A.

Ligustrum vulgare, common privet, Europe.

Lonicera Tartarica, bush honeysuckle, Tartary.

Neviusia Alabamensis, snow wreath, Ala., U. S.

Philadelphus in variety, syringa, mock orange, various countries.

Potentilla fruticosa, shrubby cinquefoil, Britain.

Prunus maritima, beach plum, N. A.

P. Sinensis, flowering plum or peach, China.

P. triloba, double flowering dwarf plum, China.

Rhus in variety, sumach, Japan and N. A.

Ribes aureum, Missouri currant, N. A.

Robinia hispida, rose acacia, N. A.

Rosa lutea, Harrison's yellow rose, Orient.

R. rubiginosa, sweet-briar, Eglantine rose, Europe.

R. rubrifolia, red-leaved rose, Europe.

R. rugosa, Ramanas rose, Japan.

R. setigera, Michigan rose, N. A.

R. var. Prairie Queen, N. A.

Rubus deliciosus, Rocky Mountain bramble, N. A.

R. odoratus, flowering raspberry, N. A.

Sambucus Canadensis, common elder, N. A.

S. nigra var. aurea and variegata, golden and variegated elder, Europe.

S. racemosus, scarlet-berried elder, Siberia.

Salix rosmarinifolia, rosemary willow.

Shepherdia Canadensis, buffalo berry, indigenous.

Spiræa Billardii, Billard's spiræa, Japan.

S. Japonica (callosa) in variety, Fortune's spiræa, Japan.

S. cana, hoary-leaved spiræa, Croatia.

S. Cantoniensis, Reeves' spiræa, Japan.

S. bullata (crispifolia), crisp-leaved spiræa, Japan.

S. Douglasii, Douglas' spiræa, northwest America.

S. Douglasii var. Nobleana, Noble's spiræa, Cal.

S. Japonica var. Bumalda, Bumalda spiræa, Japan.

S. Lindleyana, Lindley's spiræa, Himalayas.

S. opulifolia aurea, golden leaved spiræa, N. A.

S. prunifolia fl. pl., bridal wreath, China, Japan.

S. sorbifolia, ash-leaved spiræa, Siberia.

S. Thunbergii, Thunberg's spiræa, Japan.

S. Van Houttei, Van Houtte's spiræa, Japan.

Staphylea colchica, bladder nut, Caucasus.

Symphoricarpus occidentalis, wolf berry, western North America.

S. racemosus, snow berry, N. A.

S. vulgaris, Indian currant, N. A.

S. vulgaris variegata, variegated currant, N. A.

Syringa Emodi, Mt. Emodus lilac, Himalayas.

S. Japonica, Japan tree lilac, Japan.

S. Josikæa, Lady Josika's lilac, Hungary.

S. Persica, Persian lilac, Persia.

S. villosa, downy-leaved lilac, China.

S. vulgaris in variety, common lilac, Persia and Hungary.

Viburnum acerifolium, dockmackie, N. A.

V. lantanoides, hobble bush, N. A.

V. Nepalense, Nepaul.

V. nudum var. cassinoides, N. A.

V. Opulus sterilis, common snowball, N. A.

V. Sieboldii, Siebold's viburnum, Japan.

HARDY VINES.

Actinidia arguta, Japan.

Aristolochia Sipho, Dutchman's pipe, N. A.

Akebia quinata, five-leaved akebia, Japan.

Ampelopsis quinquefolia, Virginia creeper, indigenous.

Celastrus scandens, bittersweet, indigenous.

Clematis, large flowered varieties.

C. crispa, leather flower, N. A.

C. apiifolia, Japan.

C. Flammula, sweet-scented virgin's bower, south Europe.

C. integrifolia var. Durandi, Durand's, Europe.

C. paniculata, Japanese clematis, Japan.

C. Viorna var. coccinea, scarlet clematis, Texas.

C. Virginiana, virgin's bower, N. A.

C. Viticella, vine clematis, Europe and Asia.

C. Viticella var. kermesina.

Euonymus radicans variegata, creeping euonymus, Japan.

Lonicera Periclymenum var. Belgica, Dutch monthly honeysuckle, Europe.

L. sempervirens, scarlet trumpet honeysuckle, N. A.

Periploca Græca, silk vine, Orient.

Tecoma radicans, trumpet vine, N. A.

Vitis cordifolia sterilis, flowering grape, N. A.

SOMEWHAT TENDER TREES AND SHRUBS.

Azalea mollis, three specimens remained unprotected in an open position on the Wooded Island the winter after the World's Fair closed and bloomed freely the following summer on my grounds. A group in a sheltered position in Lincoln Park, Chicago, remained out unprotected last winter, evidently uninjured. A dozen small plants on my place with an inverted box filled with leaves over them, passed last winter safely. My larger plants are lifted in the fall, planted in soap boxes and wintered in a cool cellar.

Cornus Mas var. variegata, Cornelian cherry; lives but does not thrive.

Cornus alba var. Spæthii, when slightly protected does fairly well.

C. florida rubra, lives three or four years but makes no headway; does not bloom.

C. florida pendula, the weeping dogwood, lives, but does not bloom and the leaves always have a wilted look.

Daphne Cneorum, the garland flower, will not thrive with me but seems to do well in a neighboring garden a mile away.

Acer Pseudo-platanus purpurea, the purple-leaved sycamore maple, gets its terminal buds winter killed.

Acer palmatum, the Japanese maples, do not thrive, they gradually die out.

Abies Nordmanniana, Nordman's silver fir; on probation, stood last winter quite well, it had an artificial wind-break.

Magnolia Soulangeana and M. obovata var. discolor, do well in a sheltered position and well wrapped in straw in winter.

Liquidambar styraciflua, sweet gum tree, has passed three winters here fairly well, but terminal buds are apt to freeze.

Paulownia imperialis, empress tree; retains its growth as far up as protected.

Quercus Robur var. concordia, the golden oak, gets killed back considerably.

Sciadopitys verticillata, Japanese umbrella tree; does well under slight protection. [If we mistake not it will live with you all right if sheltered from wind or warm sunshine.—Ed.]

Sophora Japonica pendula, is on trial, it has passed one winter unprotected, but seems slow in getting established.

Styrax Japonica, requires protection.

Tsuga Canadensis Sargentii pendula, Sargent's weeping hemlock, lives but makes no headway although protected from winds. [Exceedingly slow growth is characteristic of it.—Ed.]

Diervilla (Weigelia), Deutzias, Hibiscus Syriacus, all three, in all their varieties, are fairly hardy. If planted in rich ground they make more new wood than they can ripen and it winter kills. The hibiscus in such positions often loses more wood than ought to be cut back in the spring.

Hypericum Moserianum, requires the protection of a cold frame.

Kalmia latifolia, sheep laurel, requires a slight protection in order to flower it.

Kerria Japonica, winter kills too near the root but comes out again and flowers.

Rhodotypus kerrioides, acts nearly in the same way as the kerria.

Roses Mme. Geo. Bruant, Seven Sisters, Ayrshire and Wichuraiana, all require light protection.

Pavia macrostachya, lives but does not thrive or flower.

SOMEWHAT TENDER VINES.

Ampelopsis tricuspidata (Veitchii), Japan or Boston ivy, is hardy if protected some five or six feet up for a few years after planting.

Ampelopsis bipinnata, kills back some.

Lonicera Halleana, kills to the ground, but comes up and flowers.

Lonicera flexuosa var. aureo reticulata, the golden-netted honeysuckle, requires some light protection such as the matted vine of the thunbergia thrown over it in winter; this preserves the wood. Heavy wrapping kills the vine to the ground. It does not flower.

Pueraria Thunbergiana (Dolichos Japonicus), kills to the ground but comes up next spring and will grow thirty or more feet.

Wistarias do not do well with me.

FAILURES—TOO TENDER.

Those mentioned below were given full trials as to protection, character of soil, drainage, etc., but all failed.

Azalea viscosa, A. nudiflora and Ghent varieties.

Andromeda arborea, sorrel tree.

Corylus Avellana purpurea, purple-leaved hazel.

Stuartia pentagyna.

Styrax Americana.

Viburnum plicatum, Japanese snow ball.

Lonicera fragrantissima, fragrant bush honeysuckle.

Hydrangea quercifolia, oak-leaved hydrangea.

Halesia diptera, southern snow-drop tree.

Idesia polycarpa.

Ligustrum ovalifolium, California privet.

Ilex (Prinos) verticillata, eastern winter berry.

Rhododendrons.

W. C. EGAN,

Egandale, Highland Park, near Chicago.

TREES AND SHRUBS FROM THE WOODS.

I had much better success in transplanting *Kalmia latifolia*, or laurel, as I like better to call it—than I expected after reading your article in September, 1894. I have some bushes two years old and several others a year old that seem in good condition. They are not very beautiful yet, but they are alive and apparently happy. Of other shrubs that I have brought from the woods I have several inkberries, with their fine evergreen foliage, a bay, two or three plants of *Andromeda Mariana*, several green briers, three flowering dogwoods, two of them very fine, a low green willow, a sage willow, a dwarf sumach or *Rhus copallina*, a sheep laurel and a fine swamp magnolia of round close habit that had twenty-eight blossoms the first year that I transplanted it. I have also a holly, two sweet gums and a fine little red maple. But though I must have brought twenty pines from the woods—Jersey scrub, Indian and yellow—I have not made one live, and only two junipers out of a dozen. I have transplanted these evergreens at every season of the year, and of every size I could almost say. I have dug about them and headed in their roots the previous year. I have done everything I could learn, but could not make them live. And I have struggled too with the sassafras and sour gum, two of our prettiest trees, but they follow each other to the grave, one after another with perfect unanimity. X.

South New Jersey.

THE JAPAN ALLSPICE (*Chimonanthus fragrans grandiflora*).

How many of you have ever had a breath of its spiciness? For hardiness it just about holds its own at Richmond, Va. [Not uncommon at Washington.—ED.] or on a wall at London, England. It is deciduous, and in winter it is covered with small dull yellowish flowers which are among the most delightfully fragrant in the universe. Although it is rather a sprawling shrub, by pinching in its shoots it can be kept in bounds and compact. It may be planted out in the garden in spring, and lifted and potted or boxed early in the fall, and in this way we can enjoy its delicious flowers in the house or cool greenhouse in winter. But planted out in a cool greenhouse as we do camellias, what a delightful plant it is!

JAMES MCPHERSON.

True. And better than that, we can grow it out of doors at New York, and enjoy it too, as we will show you. At Dosoris we have a specimen 6 or 7 feet high and several years old growing in the south edge of a rhododendron bed. About the middle of November we tie up its branches together somewhat, then set up a wooden box like a cupboard over it, but instead of boarding the south side of the

box we fasten a sash into it that we open and shut like a cupboard door; and mulch the ground with a heavy mass of oak tree leaves. During December, January and February this bush blooms beautifully, and every time we pass by there we cannot resist the temptation of opening the window, to sniff the fragrant air, feast our eyes, and pick a sprig of the blossoms. The leaves too, dried or green, are spicy. To us it has another interest, a remembrance of our youth, namely, aside from *Buckleya distichophylla*, a North Carolina shrub, this Japan allspice was the hardest plant to strike from cuttings we ever tried to propagate; from layers it roots all right.

HALL'S JAPAN HONEYSUCKLE.

I see in GARDENING, December 1, somebody asking if Japan honeysuckle is hardy in W. Va. In twenty years it has been killed to the ground with me three times, last winter being one, but as it grows up again from the ground so rapidly the killing hardly delays its blooms, and if the old wood is left it is covered by June. I only wish it was killed now and then, as with all its good qualities, and I value them highly, it is a terrible nuisance if it gets a start on a fence or in grass.

KILLING AILANTUS.

I have killed ailantus, the most persistent sprouter I ever fought, by boring holes in the stump and keeping them filled with salt, and have a notion to try it on my fence honeysuckle.

A DEBILITATED TREE PŒONY.

For fifteen or maybe twenty years I have had a shrub pæony growing in the same spot. For some years it has had such little trifling blooms no one would ever guess how pretty its flowers used to be. Manuring, trimming, etc. have done no good. Must I move it? [Yes, by all means. And when you dig it up look and see if there is anything the matter with the roots. If they are cankered or worm-eaten cut away the diseased parts. Plant in fresh, good soil, that doesn't get very dry in summer. If the roots are diseased fresh soil may not restore them to full health; but if they are all right it should help them greatly.—ED.]

HYDRANGEA PANICULATA GROWS WEAK.

I have an old shrub of this hydrangea whose flower heads, notwithstanding encouraging treatment, are quite small compared with what they used to be. What should I do for it? [Cut it back hard, then lift it carefully and transplant it into fresh ground; the soil should be deep and rich, and if practicable moistish in summer. Far sooner than bother transplanting an old bush like that, however, we would rather plant a young one. Or grow the old one for another year and elbow a few of the side branches into the ground as layers and a year later sever them and transplant them.—ED.]

THE WIRE TRELLIS GETS TOO HOT IN SUMMER.

In answer to my inquiry about covering smooth pillars with vines, page 67, you suggest putting wire netting around the pillars to support the vines. Will not the wire get too hot and kill the young vines? I tried the netting as a frame for clematis and have nearly killed my clematis with it; shall take it down next spring. It gets hot down in this country in summer and makes iron pretty uncomfortably warm I assure you. [If the painted wire netting gets too hot for clematis—the large flowered ones only we presume, not species like *paniculata*—it might be well to try slender wooden rods—say ⅝-inch in diameter and made of clear white pine, and painted—run upright and fastened together on the side next the pillars by thin wire and staples. Long bamboo stakes would also answer, but they are not as durable as the painted pine strips.—ED.]

UNDER THE MULBERRY TREE NOTHING GROWS.

Under a mulberry tree near my house is one of those "shady corners" that no plant can be tempted to "enjoy," in spite of what one of your correspondents says on page 322 in the last volume of GARDENING. Ferns, myrtle, wintergreen, *Euphorbia Ipecacuanha*, the low blackberry and quantities of other plants got in shady woods and carefully transplanted, refuse like the grass to live there. X.

South New Jersey.

Dig or fork the ground three or four inches deep under the tree, regardless of roots, then spread some old leaf soil one or two inches deep over it. Now plant periwinkle (what you call "myrtle"), English ivy, creeping hypericum, or Hall's Japanese honeysuckle in it, and let them run at will. To insure success, have these plants growing in good soil in your garden for one or two years before setting them out so that each one of them will be a well rooted, independent, established plant. Do this in September or early October to give the plants six months in which to get established before the mulberry leaves come on to shade them. It isn't the shade altogether that is ruinous to the carpeting plants, but the dry, often hard, surface soil, for the mulberry is a surface feeder as well as a deep rooter. If you once get a good thick sod of vines there so as to catch and hold leaves to make it spongy, and rain when it falls, many a little plant will feel at home under the tree, that would die there if the ground were bare, hard and dry. In digging the ground when preparing it, if many young roots are cut or torn up it may be well to balance this loss by cutting in the top of the tree a little. But there is no gainsaying the fact that it is a very difficult thing to get a good carpet of plants under a low thick branched tree, be it mulberry or any other.

MAGNOLIA FUSCATA.

Everyone who loves perfume should keep a plant of this Chinese little evergreen shrub by them. It isn't hardy but like *Daphne odora* and *Camellia Japonica* it will stand a few degrees of frost for a short time unhurt. It is easily obtained and easy to manage. It may be planted out of doors in a shady border in spring, and lifted and potted or boxed in August or September. The plants soon form a mass of roots like a bush of box, enabling them to bear frequent transplantings with very little check. [It is called *Michelia fuscata* nowadays. It is one of the gems among hardy shrubs in gardens in the southern states.—ED.]

JAMES MCPHERSON.

A HEDGE IN WISCONSIN.—G. P. G., Chicago, wishes to know what are the most suitable plants to set out for a hedge at Lake Beulah, Wis., for the entrance to a country place. Mr. Albert Salisbury of Wisconsin answers: "For a hedge to be kept closely trimmed use arbor vitæ or hemlock; for a windbreak, the Colorado blue spruce. The green varieties of this spruce, are what are commonly used for hedges, and they can be had in nurseries at reasonable rates. Outside of evergreens, the common barberry is about the best hedge plant for this region."

A PRETTY HEDGE PLANT.—For a low hedge effect nothing is prettier, in my opinion, than the variegated leaved corchorus or kerria as it is also called, trimmed slightly now and again. Perhaps you will say variegated hedges are not in good taste. J. W. B.

Plainfield, N. J.

The Flower Garden.

TROPÆOLUM SPECIOSUM.

Can you give me some advice as to growing *Tropæolum speciosum* from seed? I failed last season to germinate one seed. Last month I had some seed sent me from England; these I soaked over night and planted in ordinary soil in a box and put the same in cellar. Should they get some frost this fall or will they start without it? I have been unable to get tubers, so am anxious to grow it from seed if possible. L. O. P.

St. Francois Xavier, Manitoba.

Get fresh seed, in the fall, and sow it at once, say in wooden flats as you have done, then place the flats in a cool but frost-proof cellar to remain there till spring. Place a little fresh, clean, loosely shaken-up swamp moss over the surface of the soil to keep it moist. When spring opens, or before that if the seeds germinate, bring the box up from the cellar and set it in a cold frame out of doors, or if the seedlings are up, keep it in the window till the young plants can be safely trusted outside. But it isn't an easy matter to propagate it from seed.

We are glad to know of your earnest endeavor to cultivate this lovely, hardy vine, and and hope you will succeed. It is a herbaceous perennial species, a native of Chili, and although it is hardy at New York, we do not think it can be hardy in Manitoba unless under a very heavy winter mulching Oh, how grand we have seen it in some European gardens, forming a wall of neat foliage, and ablaze from bottom to top with brilliant vermilion blossoms, in other places spreading over rocks and bushes in like manner as our wild clematis and mikania do when they run over our shrubbery. One of the prettiest floral sights we remember was at Altyre in the north of Scotland, where the gable end of the blacksmith's house, in the wood, covered with this tropæolum, was a sheet of flame from the ground to the ride. Aye, it was finer there in the poor man's yard than we ever saw it in a nobleman's garden. Notwithstanding that, however, it is a hard plant to grow, and it behaves exasperatingly with us. It seems to prefer a cool, moist well-drained soil, shelter from wind, and an eastern or southeastern aspect. But don't subject the roots to hard frost, mulch them deeply in winter. If you fail with seeds, try roots. Packed in slightly damp moss in a tin box, all to weigh less than eight ounces, you can import them from Europe by mail in good condition.

HEAVENLY BLUE MORNING GLORY.

With ipomœa Heavenly Blue, after three years' experience, I am as much pleased as I am disgusted with the yellow cosmos. The Heavenly Blue deserves its name, and I know of no flower more re-

THE MANY FLOWERED TORCH LILY

fined and elegant, and though it blooms with me too late to perfect seed, I yet each year plant a stretch of some 500 feet for the enjoyment received from them. One point which has not been made prominent, but which should be, is that if a piece of the vine in bloom is cut off with undeveloped buds and taken into the house and put in water, the buds will develop and open up daily as though growing on the vine. This enables one to produce a beautiful effect by twining the cuttings around pictures or small statuary, cabinet mantels, etc. Another point in its favor is that it opens about 8 o'clock in the morning and continues open until about 3 to 4 in the afternoon. Throughout it is both elegant and charming. A. W. SMITH.

Americus, Georgia, Nov. 7.

THE MANY FLOWERED TORCH LILY.

(*Kniphofia aloides* var. *floribunda*).

How keeping trace of these botanical names does bother one! We used to give this species *Tritoma Uvaria* for a botanical name, and "fiery poker" for an English one. Well, you all know how good a plant the old tritoma is, and I can assure you that the variety of it called *floribunda* is very much better than its parent.

It is an accidental seedling that originated in my garden a few years ago. I used to grow a good many clumps of the old *Tritoma Uvaria* and they did moderately well with me, living out of doors over winter under a mulch of leaves and growing nicely and blooming fairly well in summer. One day I noticed a distinct appearing little plant unusually full of rising flower scapes, near an old clump and marked it, and early the following spring lifted, divided and replanted it, keeping it by itself. It has proven so much better and more floriferous than the old form that I have discarded all of my old plants, retaining only this new variety to which I have given the name of *floribunda*.

It is such a free bloomer that the smallest piec. planted out in spring will bloom the same year. Established plants begin flowering very early and keep in blossom more or less till frost destroys them in November. We cut our first out of door flowers of it last summer on Decoration Day; the blossoms stand 7° or 8° of frost in fall before they show signs of injury. The large plant shown in the picture had forty-nine flower spikes on it during last summer. A noticeable point about this variety is, that while the old *Uvaria* used to seed freely with me, I have never found a good seed pod on the *floribunda*. It is also hardier than the old sort, standing our winters here without any protection, but of course, a mulching of leaves for it always advisable.

Auburn, N. Y. J. ELLETSON.

HIBISCUS—CANNAS.

Where can I buy large single flowered hibiscus bushes? What are the best variety of dwarf cannas and where can they be had? EDGEMOOR.

Oconomowoc, Wis.

1. Drop a note to J. C. Vaughan, F. R. Pierson Co., Henry A. Dreer, or Pitcher & Manda, whose advertisements you will find in GARDENING, telling them what you want, and the size and number of the plants. But there are lots of large single flowered kinds of hibiscus, the commonest being *H. rosa-sinensis*, a tender shrub with large red, scarlet or crimson flowers; it is grown in the greenhouse in winter and may be kept in a pot or tub, or planted out in summer. What we call althæa, a hardy shrub (may get killed to the snow or mulch line with you) that blooms in July and August, is *Hibiscus Syriacus*. The single pure white is a beautiful shrub, but the other singles are in less demand than the doubles. In ground where the growth would be hard and well ripened this shrub will live better than in rich soil where the young growth would be sappy. A very common and beautiful hardy hibiscus with large pink or white blossoms is the eastern swamp rose mallow (*Hibiscus Moscheutos*). It is a herbaceous plant, and not a shrub, that is it dies down to the ground every year as a phlox or larkspur does, but on account of its bold, vigorous growth it is often classed among shrubs. Although native in our brackish swamps it thrives in common inland garden soil just as well as any other plant, and is a most desirable plant to have. Get a dozen or so of it, give it good somewhat moist soil to grow in, throw an armful or two of tree leaves about the crowns of the plants in winter, and don't be disappointed if they don't blooom till the second year. They live for many years, flower very generously, and ripen lots of seeds; then you can raise any quantity of young plants from your own saved seeds.

2. Get Madame Crozy, crimson-scarlet edged with yellow; Queen Charlotte, crimson broadly banded with yellow; Alphonse Bouvier, brilliant crimson; Columbia, crimson, large trusses; Charles Henderson, rich crimson, compact spike; and Eldorado a fine, large yellow flower spotted a little. While these are excellent tried sorts each, one having a distinct advantage of its own, get a dozen or so of the newer varieties (any of the dealers mentioned above can supply them) and plant them out in a border or even in a row in the vegetable garden, four feet apart, in deeply dug, well manured ground and give them their full freedom. In them you will have both interest and pleasure.

FIVE MONTHS OF CARNATIONS.

From the last week of May till the first of November I think there was not a day when we could not gather at least a little bunch of the spicy carnations from our garden. And this is the way we raise them. Sow early in spring seeds of the Grenadin, Early Vienna, and English border carnations. Transplant about a foot apart, or farther if you have plenty of room, and keep them in vigorous growth through the season. They are hardy in pretty cold climates. They are mostly double and yield flowers of many colors and shades, some of them large

and of the richest fragrance. The Viennas or Grenadins will be first to bloom, then come the English border plants, and these carry the bloom into July, when these three kinds are most done for the year. If we were to depend on plants from seed alone there would now be a little gap before the Margaret carnations begin, for notwithstanding what is said about their blooming in four months from sowing, I do not think they will do it under ordinary conditions, and August is as soon as we look for their flowers, the seeds being sown in early spring. This gap is filled by planting out about the first of May some rooted cuttings of greenhouse varieties, which may either have been wintered in a cold frame, or got from any florist in spring. These and the Margarets maintain the bloom till the hard freezing of November. The seedlings, especially of the first three kinds are the more profuse bloomers, some of the plants looking as if they had hundreds, certainly they had dozens of stalks in bloom.

Plainfield, N. J. E. R.

HOW TO GROW GLADIOLI.

Knowing that the late Mr. George Such used to be one of the largest growers of gladioli in America, and what an honorable and conscientious gentleman he was, and so good a friend of GARDENING, a few days before he sailed for Europe last summer, we asked him to tell us how he grew this favorite flower. He could not then. But Mrs. Such has sent us the following notes on the subject which were contributed by her esteemed husband to the London *Garden* a few years ago, and which are as pertinent now as they were then.

"Over-rich soil and too much moisture have much to do with the degeneration of this fine flower. For fifteen years or more I have been a wholesale grower of the gladiolus, and at the present time—September 1880—I have many hundreds of thousands of these bulbs nearly ready to be dug up, and for a certainty, hardly one in a thousand will show the slightest trace of disease.

"My soil is extremely sandy, so much so that it has the appearance of being really nothing but sand. For the gladiolus I use no strong manure whatever, in fact, if a pretty well manured crop of corn, or some other rank grower has occupied the land during the previous season, I have the ground merely plowed up in the spring and have the bulbs planted without additional preparation. Planting begins about April 1 and is usually ended by May 1. From early in June till the end of August we have a tropical heat, the thermometer ranging from 70° to 85° and 90°. This, however, does not disagree with the gladiolus, unless the weather happens to be very dry as well as hot, in that case the plant suffers, especially if the flower stalk is showing, at which time a soaking rain is of great benefit. Towards the end of September, or indeed sooner with some varieties, the leaves begin to change from a lively green color to a yellowish brown, showing that the season's growth is at an end. Then digging up begins, each digger being followed by a boy who cuts off the stalks as soon as the plants are taken from the ground. The bulbs are dried, not in the sun, but on airy shelves, and the roots are cleaned off during rainy days, or any time during the winter, whenever that is convenient.

"I am by no means in favor of keeping the stalks attached to the bulbs after they have been dug up.

"Gladiolus bulbs, to come out in good order in the spring, should be kept cool and dry during winter. If the bulbs are in a damp place, or heaped together before they are fully dried, the roots will start in a short time, and a top growth will be likely to show itself as well. But no matter how cool and dry they may be kept, some varieties are almost sure to throw out a shoot in early spring, of which fact I may mention that the kind named Shakespeare is a notable example."

POTENTILLAS.

E. C., Illinois, wants to know something about these, and asks:

1. "What are potentillas?"

Ans. A genus of hardy perennials belonging to the Rose family of plants; English name cinquefoil.

2. "What are hybrid potentillas—what are they hybrids of?"

Ans. Garden varieties, single, semi-double and double, obtained by hybridizing some of the prettier exotic species as *P. insignis*, yellow; *P. atrosanguinea*, velvety crimson, and *P. colorata*, pink, and recrossing their progeny till the specific identity is lost sight of.

3. "Are they long lived and hardy?"

Ans. Under certain favorable conditions and in certain soils they may live for several years without being disturbed, but as a rule they need breaking up and replanting after the second year. They seem to be fairly hardy, but are markedly better for a mulching of light loose material or evergreen branches. When well grown they are desirable and beautiful plants, but there is no denying that they need careful attention, in fact if they didn't we would see more of them, for they have long been in cultivation.

4. "Are they easily raised from seed?"

Ans. Yes. But the species only can be depended on to come true to kind; seedlings of varieties come mixed. The flowers are generally single or semi-double, it is seldom that we get a good double flower from seed.

5. "Will they blossom the first year from seed?"

Ans. The singles ought to, so should the semi-doubles; the full double or named varieties are generally propagated by division as growth begins to start in early spring, and should bloom the first year, but of course more the next summer.

6. "Are they good for cutting, massing, or what?"

Ans. They would be if we could get them in quantity enough. But their best place seems to be in the borders and wide front of shrubbery beds and in rockeries, where they are more at home for garden than house decoration.

CUPID SWEET PEA.

This is a pure white flowered sweet pea of pigmy stature. It was a chance seedling discovered at Santa Clara, California, in 1893, by Mr. C. C. Morse, and sold by him to Atlee Burpee & Co. of Philadelphia. It grows from four to six inches high, is very stocky, and each plant makes a leafy mat some twelve to twenty inches across, consisting of several short-jointed branches that haven't the least inclination to trail or climb. The plant is also exceedingly floriferous, bearing a profusion of snow white, perfectly formed, fragrant blossoms on little stalks three to four inches long. This little beauty is unique among sweet peas. Planted in beds as we would verbenas it forms a carpet of snow; or set out as an edging to other flower beds it will make a beautiful band of white. While its use out of doors will be for garden decoration principally, if we wish to we may use its blossoms for cut flowers as we do those of the other sweet peas, but for this end it is not as desirable as they are because of the shortness of its stems. As a window or greenhouse pot plant what a gem it will be. We can have it in bloom all the spring as we can oxalis, musk, primrose or other tufted subjects. It will probably be the lion among seed novelties in this winter and spring's catalogues. Now let us caution our readers who buy the seeds against sowing them deep. Sow the seeds in a pot or pan or wooden flat box in light moist soil, covering them half an inch deep; or in a cold frame one-half to three-fourths inch deep; or in the open ground an inch deep. When the plants are two inches high lift them very carefully and transplant them singly into pots if for pot culture, or in rows in the garden, the plants being a foot asunder in the row. Don't despair if the plants come up slim to begin with, they will probably branch out with sturdy vigor when they get a little older.

GLOBE ARTICHOKE.

W., Chicago, wants to know something about the globe artichoke as a decorative plant, and asks:

1. "Is it hardy?"

No. But under a heavy mulching it lives all right. It is a herbaceous perennial, thistle-like plant of much luxuriance of foliage. We cut it off close to the ground in November, then place a shovelful of earth or coal ashes on the top of the crown tamping it firm; then wait till the ground freezes and place a big armful of leaves on top of each stool, and the old leaves or some litter over the tree leaves to keep them in place.

2. "Will good plants come from seed, or is it perpetuated from suckers?"

Good plants can be obtained from seed. If sown in a greenhouse in February or March and planted out in spring many of the seedlings will bloom the first year; if not sown till later, they are not apt to bloom till the following year. But they will make fine big leafy clumps. By division is the common method of increasing them; simply dig up a clump and chop it through into several pieces, replanting these, or dig up some pieces from the sides of the old clumps. In both cases they will make large flowering clumps the first year.

CLEMATIS—RED SPIDER.

THE JAPANESE CLEMATIS PANICULATA has not been over praised, it is a very satisfactory plant; always clean and healthy looking, and a sheet of fragrant blossoms in August and September.

RED SPIDER ON SWEET PEAS troubled me this summer, tobacco dust on the wet foliage had very little effect, then I used the hose and the full force of hydrant holding the nozzle under the foliage, two or three doses were sufficient. [Tobacco in any form is useless as an insecticide in the case of red spider.—ED.] GARDENING: I desire to add my quota of appreciation for it; it is filled with useful practical information and I hope never to be without it. Even the advertisements are clean and reliable, no quack medicines or bogus jewelry. I have the three Vols. bound and they prove invaluable as reference books.

Waterloo, Ontario. J. L.

PINK COLORED PERENNIAL POPPIES.—One of our readers asks if there are any of these. *Ans.* Of the clear pure pinks such as we have in carnations, and Shirley poppies we have not so far as we know,

CUPID SWEET PEA.

but the common Oriental poppy has in recent years, been broken up into several shades of salmon and rose as well as scarlet; and the color of the blooms of *Papaver pilosum* is a sort of salmon-pink. All are easily grown and good perennials. *Pilosum* is readily raised from seed.

Chrysanthemums.

MY CHRYSANTHEMUMS.

My chrysanthemums have done quite as well as could be expected, considering the indifferent place have had to bloom them in; some have been excellent, notably Rider Haggard, Mrs. E. D. Adams, H. Balsley, Latest Fad, Katherine Leech, Mme. Ed. Rey, Yellow Queen, Miss Tacie B. Harper, Philadelphia, Kioto, Marie Louise, Eugene Dailledouze, M. Jeffords, Wm. Falconer, Col. Tobin, Mrs. M. R. Parker, Jr., Chalfant, Niveus, The Queen, Constellation, Mutual Friend, Rose Wynne, Mrs. J. H. White, Master of the Garden, Mrs. Jos. Rossiter and Golden Dawn. Helen Bloodgood, Fisher's Torch, Mrs. W. H. Trotter and Esther Cleveland were very unsatisfactory. It may be when I get into my greenhouse another year I may have better success with the disappointing ones. Fisher's Torch, as I have it, is worthless, Octoroon is just coming out and gives good promise.

Whitehall, Mich., Dec. 5. C. W. R.

CHRYSANTHEMUMS FROM CUTTINGS.

A. B., N. J., asks: "When is the proper time to take chrysanthemum cuttings?" The best time to take these depends upon the purpose for which the plants are wanted; if it is desired to have plants in large pots for specimen plants the cuttings should be taken early, say from the middle to the end of January, and as soon as they are rooted grow them on as cool as reasonable. If for ordinary bush plants the end of February or March is time enough, and if for small pots and specimen blooms the end of May or early in June is soon enough. The same time will apply for plants to be grown in benches for specimen blooms, such as are grown for the large cut flower markets and for exhibition purposes.

Summit, N. J. JOHN N. MAY.

CHRYSANTHEMUMS FOR THE BORDER.

Much has of late been said and written about chrysanthemums that would grow and bloom in our open borders, and give us that very much wanted mass of colors in a time of the year when only here and there a few late comers still remind us of the fast disappearing summer. But where is that chrysanthemum that will give us this pleasure? It certainly would be welcome.

At the close of the World's Fair I obtained some chrysanthemums under the name of Golden Fleece, of the pompon type—if I mistake not they were exhibited by Dingee & Conard—which were claimed to be hardy and they have proved so. But unfortunately those beautiful blossoms that should give tint and color to our fall landscape are wanting. The plant has budded well every year, but at the time buds are going to open cold weather has already set in to such a degree as to check the developing of any flowers save a few crippled ones. The plants have always been in a sheltered position and could not be given better protection. The same will apply to *Cosmos bipinnatus* also, but this plant being a little earlier some pleasure is derived from it.

The perennial borders should never be without chrysanthemums wherever grown and bloomed successfully, but I doubt very much if we ever will be able to see our gardens gay with them in this part of the country. JAS. JENSEN.

Chicago, Ill.

[About New York and southward the pompons live well and bloom well out of doors, but north and west where the winters set in early even they are not satisfactory. But if we mistake not we shall soon have an early blooming race of chrysanthemums that will be of use to you.—ED.]

Roses.

MILDEW ON ROSES.

A. B., Middlebrush, N. J., writes: "My roses are badly mildewed. What can I do to stop it or destroy it? I have tried dusting with sulphur but it has failed to do any good."

The best way to check this trouble is to mix some sulphur to the consistency of paint, then with a brush or stub broom give the pipes in the greenhouse a thin coat when they are quite warm, the evening of a cold day is the best time to do it. Care must be taken not to put on too heavy a coat, as it will then destroy the color of the flowers. After applying it be very careful to attend to the airing of the greenhouse regularly, as the young foliage will get badly damaged if the temperature is allowed to run up too high without ventilation, particularly if with bright sunshine—the greatest preventive of mildew is judicious ventilation, for plants like animals delight in fresh, pure air—start giving air in the morning as soon as the temperature in the greenhouse reaches 62° or 63°, gradually increasing it as the thermometer rises, and reducing it in the same way in the afternoon, this keeps the plants in such a sturdy vigorous condition that mildew seldom gets a foothold. JOHN N. MAY.

Summit, N. J.

CLIMBING ROSES.—W., Durham, N. C., asks: "Is climbing La France really a climber? Is climbing Perle des Jardins a climber? I have them, bought of reputable florists, and they have failed to climb." *Ans.* Yes, the climbing La France is really a climber. See picture of it, engraved from a photograph, in GARDENING, page 149, February 1, 1893. Its only fault is, so far as we know, that it is rather shy blooming. The climbing Perle is also a climber. We saw it in fine form the other day, trained along the rafters in the conservatories of Mr. Wm. Brown, at Flatbush, N. Y.

The Greenhouse.

GREENHOUSE PLANTS IN BLOOM NOW.

The Catalonian jessamine (*Jasminum grandiflorum*) has fragrant white flowers and is very useful for cutting. *Habrothamnus elegans* has purplish red flowers and blooms nearly all the winter, and so does H (*Cestrum*) *aurantiacus* with orange colored flowers. Varieties of the old fashioned and now much neglected camellias with red, white and variegated flowers are in bloom. The white flowered laurestinus (*Viburnum Tinus*) is a capital

winter bloomer; we lift the plants from the borders in the fall and pot them. Stevias whose panicles of white blossoms are indispensable for cutting are at their best, and we have a nice lot of snapdragons (*Antirrhinum*) in bloom. *Chrysanthemum tricolor*, sometimes called "painted daisies," an annual species, is very useful for cutting, the flowers last a long time—we sow the seed in August. *Lasiandra macrantha*, a free flowering plant with large violet purple flowers, is beautiful just now, but its flowers being ephemeral are of no use for cutting; it does best in the cool greenhouse. *Euphorbia splendens* is in bloom in the warm greenhouse, it has long fleshy vine-like exceedingly thorny stems and numerous small rose colored pretty flowers. Of recent years, for commercial purposes only, it has been called the "crown of thorns" plant, a name it has no right to whatever. *Libonia floribunda* is coming into bloom. It is very useful as a pot plant for winter decoration, but as its flowers wilt so soon after being cut they are of no use for this purpose. We raise a fresh lot of plants every year from cuttings rooted in March.

We buy a lot of plants of *Azalea mollis* every year for forcing. When received in November they are potted and placed in a cold frame, and we take them into the greenhouses as required, allowing six or seven weeks between when we bring them indoors and their time of flowering. We never force them the second season, but plant them outside in beds, where they thrive and make pleasing objects in early summer. Plants of the dwarf Otaheite orange in 6-inch pots, with from eight to ten small fruits, make nice plants for table decoration. WM. FITZWILLIAM.

Orange, N. J.

CARNATIONS.

Happening to be at Flatbush, L. I., the other day we called on a few of the florists there. Flatbush is one of the outlying towns recently annexed to Brooklyn, and there are villages of greenhouses on its outskirts. Carnations seem to be their principal crop, and as a rule they were superb in bloom and growth. They are grown in both span-roofed and hip-roof (¾ span) greenhouses, always on raised benches and well up to the light; and they are always planted out on the benches. The finest house we saw was at Dailledouze Brothers' place. It was a new iron frame building of the most improved modern pattern, ¾ span, 200 feet long, with large panes of glass, we raised up benches made of 1¼-inch cypress plank, and heated by hot water in 2-inch pipes. It was built by Lord & Burnham. It was filled with one unbroken mass of carnations from end to end, superb in growth and bloom and as even as the finest grain field. The leading varieties grown were Scott (William Scott. But no matter what the full name of a variety may be the florists abbreviate it, if there is any shortening to it), pink, Lizzie McGowan, white, and Helen Keller, variegated. We noticed a lack of scarlet flowers, but some still held on to Portia. Tidal Wave, a dark pink variety of dwarfish habit, was largely grown. Yellows of any sort were few. Crimsons were fewer still, at the same time some of the most successful growers spoke very highly of Meteor. Dailledouze Brothers had a large house filled with Bay Ridge, a pale salmon pink sort, and thought well of it. Many other kinds were to be seen in quite limited numbers, but there was some fault to find with most of them. Even the lovely, full and fragrant pink colored Madame Diaz Albertini is rejected absolutely, and Daybreak, a pale salmon pink, which was a few years ago a reigning favorite, has lost its popularity with them. Instead of using bent wire netting between the rows of plants to support them and allow of free ventilation between them as they used to the florists generally have adopted a support made of galvanized wire, consisting of a circular loop about 5 inches or 6 inches in diameter, then both ends, about 12 inches long bent back to insert in the ground like stakes. The flower stems rise up through the loop and are neatly and effectively supported, and the flowers may be gathered without in the least disturbing the balance of the plant. All carnations are cut with long leafy stems and only one bloom to the stem. It is now with carnations as it is with roses or chrysanthemums, the flower stems are disbudded to one flower—the terminal one—whatever other flower buds appear on the stem are nipped off as soon as they are observed. But the more flower stems a plant bears the better the florist likes it.

THE CARNATION RUST.—A little of it was to be seen at most every place we visited, but none of the florists seemed to bother about it; they kept the worst of the leaves picked off pretty clean. After the darkest days of the winter are over they insist that the rust lessens in virulence and they get good flowers even from infested plants. But some varieties, as Daybreak, are more prone to it than are others, and they recommend that preference be given to kinds like Scott, that are less subject to rust. Speaking of rust, the Dailledouze Brothers told us that they have tried lots and lots of the recommended solutions and other antidotes but without any apparent benefit.

A SMALL GREENHOUSE.

E. P. A. asks "for plans and probable cost of material for a small conservatory, say 8x10 feet, with both ends glazed, and brick foundation; also best means of heating where there is no furnace in the house and the location of the conservatory is such as to render communication with the chimney of the house impracticable."

Such a conservatory may be a span-roofed structure with a 3 foot wide bench on each side and a 2 foot wide pathway in the middle; or if built against a wall it may be a lean-to, with same arrangement inside as described for the span house. Ventilation at the top and on one side only will be enough. Place the door where most convenient. If the foundations and sides are of brick the brick wall all around should be about 2 feet high, then 2 feet to 3 feet of glass above that, enough to give you plenty headroom inside, and the pitch of the roof about 7½ or 9 inches to the foot. The cheapest way to build such a house is to make a rough drawing of it on paper, giving the size in detail, then send to some one of the firms advertising greenhouse building materials in GARDENING. They can furnish the sash bars, mountings, plates and all other wooden parts, grooved, cut to fit and all prepared to put together. Get a mason in your neighborhood to look at the job, he can give you an estimate on his part of the work in five minutes; and a neighbor carpenter can set up the wooden frame and put in the glass in a short time. For heating use one of the little boilers advertised in GARDENING, or write to Hitchings & Co. for their Domestic boiler. Kerosene stoves, coal stoves and the like may do well enough but they are dangerous; the boiler isn't.

MY WINDOW PLANTS.

Plants that bloom well with me in winter in the windows are cyclamen, geraniums, single petunias, abutilons, lantanas, yellow linum, oxalis, Zanzibar balsam, bulbs and roses.

The tea roses were propagated from cuttings in August. I give them a bath overhead every fine morning. In an east facing bay window of the dining room we have callas, geraniums, and several varieties of begonias in bloom. The vines of a thrifty plant of *Bignonia capreolata* are trained as an arch over a window; it always blooms in February with me.

I grow many gloxinias in spring and summer. The tubers are now at rest in a warm cellar; I sprinkle the soil in the pots about once a week, as I find they keep much better if kept a little moist than if dust dry. Tuberous begonia tubers, however, may be kept drier without injury. J. D.

Alexander, Ill.

CLIMBERS FOR A PALM HOUSE.

Half a dozen creepers adapted for a rather shady conservatory to grow well, look well and bloom well is a rather difficult problem to solve. However, the following three plants where they can get the most light, viz., *Bignonia venusta*, *Habrothamnus Newellii* and *Bougainvillea spectabilis* are free blooming and in flower from December till March and April. Of course their wood must be well ripened, and this may be accomplished by judiciously withholding water when growth is matured.

Now for three in the most shady location choose *Lapageria rosea*, *Plumbago capensis alba* and *Clematis indivisa lobata*. F. L. HARRIS.

Wellesley, Mass.

VINES FOR A PALM HOUSE.

I would recommend the following list of climbers as being suitable for the palm house to which you referred, page 102:

Clerodendron Thomsonæ, *Allamanda Hendersonii*, *Passiflora princeps*, *Thunbergia Harrisii*, *Tacsonia Van Volxemi*, *Dipladenia hybrida*, *Aristolochia ornithocephala*; and *Trachelospermum* (*Rhynchospermum*) *jasminoides*. If these plants get sufficient air and light to enable them to ripen their wood, accompanied by a judicious use of the knife, syringe and wateringpot, I have no doubt but they will give general satisfaction.

THOS. MINGEY.

Fairmount Park, Philadelphia.

THRIPS.

C. H., Roxbury, Mass., writes: "Please tell me what insect works in this way on plants, and what is the best remedy. Enclosed please find some of the leaves."

The mischief is done by the common greenhouse thrips, an insect that preys heavily on many plants, notably azaleas and pellæa ferns. Tobacco in any form, as fumigation, vapor or dust is a cure for it just as it is for aphides, only thrips are more difficult to destroy. Free hosing will dislodge them and keep them in check. A dry atmosphere encourages them.

FREESIAS.—E. P. A., Indiana, asks: "How old must freesia bulbs be before blooming? Those of last year did not bloom though they were guaranteed flowering bulbs, and those of this year give promise of no better results." *Ans.* We presume you refer to bought bulbs.

THE P. BARRY PEAR

If so, they should be "flowering" bulbs. But much depends upon the cultivation; if the bulbs were small they should have been potted early in fall and kept rather cool so as to give them a long season of growth without exciting them into early bloom; if large they could have been forced into bloom earlier. Raised from seed the plants bloom nicely the second year, but of course much better the third season. But freesias are increased more from a multiplication of bulbs than from seed. These bulblets should bloom nicely the second year.

FUCHSIAS.—A reader asks "what is the cause of young leaves of fuchsias turning yellow and falling?" *Ans.* Without knowing anything about the condition of the plants or how they are grown, we cannot tell. But if they are well rooted and the leaves are turning yellow we should let them go to rest, that is keep them cool and rather dry at the root. This may, after awhile, defoliate them completely, but that doesn't matter, towards spring cut them back somewhat, set them up to the light, give them a little more water, and let them grow.

COLOCASIA.—P. H C., Paris, Ontario, asks about the correctness of this generic name. *Ans.* The name *Colocasia* is good and the description of your plant seems to fit it. *Alocasia*, *Colocasia*, and *Caladium* are generic names that are a good deal mixed up in catalogues, for instance the proper name of the big green leaved plant commonly known as *Caladium esculentum* is *Colocasia esculenta*.

BEGONIA VERNON.—A reader writes: "A cutting of *B. Vernon* rooted last spring has sulked for two months, or since I pinched off the buds, as it was but four inches high." *Ans.* A year old plant should be a deal bigger than that. Pinching off the flower buds should do the plant good. If the roots are good and the plant otherwise healthy we would let it live along till next May, then plant it out; but if it is at all unhealthy we would dump it out, and raise a fresh lot from seed.

LEMON OIL.—I have tried it as an insecticide and find it all right for thrips on azaleas, and we had some ferns which were troubled with aphis, and it killed the insects without injuring the young fronds.

F. C. CURTIS.

The Fruit Garden.

GARBER'S HYBRID, LE CONTE, AND KEIFFER PEARS.

We find Garber's Hybrid an unprofitable pear and only good for preserving; it is a long while in coming into bearing and ripens in November. Le Conte ripens in October and is a beautiful fruit but lacking in quality, it rots as soon as ripe and cooks soft, and both are inferior to Keiffer, which all who appreciate a Seckel, Bosc or Anjou as dessert pears as grown here do not highly esteem.

PRUNUS SIMONI.

When this plum was first known we planted five trees, expecting to realize the glowing description we had read, but alas, when they bore fruit no one could be induced to take a second bite. We grafted them with the Abundance plum and they are truly named, and are good to eat, prolific and fine for preserving. All hail to the Japan plums. All the danger is in allowing them to overbear; we have to prop the branches up or they break, and so far they are almost free from knots and but little troubled by the curculio. Our domestic plums rotted badly, and we felt sad to find all the Spaulding, a most excellent dessert fruit, rot on the tree.

ESOPUS SPITZENBURG APPLE.—In an agricultural paper the question was asked why the Esopus Spitzenburg apple was not more planted here. About 40 years ago we planted four trees in our orchard, they lingered and grew slowly; three have since died and the one left has not borne a full crop yet and the apple is deficient in the aroma and high flavor of those grown in Western New York.

CULTIVATE THE GROUND IN SUMMER.—The last summer we kept the cultivator going through the drouth both in the garden and nursery, and the trees and plants scarcely were affected by it. Keeping the ground stirred is the best irrigation we can give a mellow soil, it prevents to a great extent e aporation from the surface, and although it is dust on the top it is a great protection. Try it.

ISAAC HICKS.

Westbury Station, Long Island.

THE P. BARRY PEAR.

During late summer and fall we have lots of pears, enough for every purpose of dessert, stewing and canning, even up till Christmas we have several, but later than that, notwithstanding Winter Nelis, Glou Morceau, Easter Beurre, and some others we have a scarcity of real good pears, and it is right here where the P. Barry pear comes in. We are indebted to the courtesy of Messrs. Ellwanger & Barry, the introducers for the use of the illustration. They say of it: "Another of the late-keeping Fox seedlings. Large, pyriform; skin orange yellow, covered with russet spots and blotches, flesh very juicy, buttery, fine grained; flavor sprightly, rich, excellent. The best late winter pear. Resembles Anjou in texture of flesh and Winter Nelis in color of skin and juiciness of flesh. Tree a good grower and must be top grafted. Ripe in April. We exhibited fine specimens of this pear at the World's Fair latter part of May."

GROWING BERRIES.

Growing berries successfully requires good taste, industry, determination and a natural love for the work, doing that which ought to be done at the right time and in the best possible manner, determine to overcome bug, blight, frosts, drouth and short crops. None of these essentials can be omitted without loss, if not failure. Study quality of soil, location and adaption to your wants. The soil must be well drained and made rich and the fertility maintained with the best fertilizers. None are better than barnyard manure and wood ashes.

Study the best varieties for your location. In the north hardy plants are essential. Study plant growth, enemies and remedies. The labor of years may be lost if this is neglected. It is safest to grow several varieties having something to pick at all seasons. If strawberries fail, raspberries, currants and gooseberries may succeed; these gone, we still hope for blackberries, grapes and other fruits. Complete failure in a single variety may come often, entire failure of many varieties, seldom.

M. A. THAYER.

Sparta, Wis.

GARDENING

WILLIAM FALCONER, Editor.

PUBLISHED THE 1ST AND 15TH OF EACH MONTH

— BY —

THE GARDENING COMPANY,
Monon Building, CHICAGO.

Subscription Price, $2 00 a Year—24 Numbers. Advertising rates on application.

Entered at Chicago postoffice as second-class matter.

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All communications relating to subscriptions, advertisements and other business matters should be addressed to The Gardening Company, Monon Building, Chicago, and all matters pertaining to the editorial department of the paper should be addressed to the Editor of GARDENING, Glen Cove, N. Y.

GARDENING is gotten up for its readers and in their interest, and it behooves you, one and all, to make it interesting. If it does not exactly suit your case, please write and tell us what you want. It is our desire to help you.

ASK ANY QUESTIONS you please about plants, flowers, fruits, vegetables or other practical gardening matters. We will take pleasure in answering them.

SEND US NOTES of your experience in gardening in any line; tell us of your successes that others may be enlightened and encouraged, and of your failures, perhaps we can help you.

SEND US PHOTOGRAPHS OR SKETCHES of your flowers, gardens, greenhouses, fruits, vegetables, or horticultural appliances that we may have them engraved for GARDENING.

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THE BLUE POTATO VINE (*Solanum Seaforthianum*, and catalogued by several as *S. azureum*) has shown itself here in a new role this year. In addition to being a pretty bluish-flowered vine in the greenhouse as well as planted out of doors, in both instances it has borne a heavy crop of scarlet berries in clusters not at all unlike those of the bitter-sweet (*S. Dulcamara*), and which hangs on to the vines for a long time, giving them a highly ornamental effect. But it isn't at all hardy. From Washington southward, however, we believe it could be treated as an annual; indeed we thing it will grow and fruit quick enough to self-sow itself there.

A HYBRID SILVER FIR.—A hybrid fir tree obtained by crossing *Abies Pinsapo* (the female) with *Abies Cephalonica* (the male) was recently shown in England. In a general way it resembles the male parent, but in the stiffness of its branches and thickness of its leaves it leans to the female. The resin canal differing from that in either of its parents is technical evidence of distinctness from either.

A PICTURE OF SWEET PEAS.—Messrs. Atlee Burpee & Co. of Philadelphia have sent us a framed copy of their new and beautiful painting of sweet peas by the artist M. Paul de Longpre. The flowers are of natural size and painted in the living, vivid hues of nature. Longpre is a talented French artist, a specialist in flower painting, and this picture was prepared by him at Fordhook Farm last summer, from life, for he had there every new and prominent variety in cultivation to choose from.

FOREIGN GRAPES IN THE AMERICAN MARKET.—Quite a business is done here in imported hothouse grapes from Europe. Indeed such quantities have been unloaded upon our markets in recent years that several gardeners who used to make a specialty of growing Hamburgh and Muscat grapes in greenhouses for the winter market have rooted out their vines and turned their attention to tomatoes, claiming there is more money for them in the latter. At the same time many excellent growers still stick to their grapes. They can sell all they can raise, but at a lower price than in former years.

IDYLLISTS OF THE COUNTRY SIDE is a dainty little book of 263 pages published by Dodd, Mead & Co., New York. Its author is George H. Ellwanger, familiar to us all by his delightful "The Garden's Story" and other works. The contents of the book are "The wand of Walton," "Gilbert White's pastoral," "The landscape of Thomas Hardy," "Afield with Jeffries," "The sphere of Thoreau," and "A ramble with Burroughs." The same broad love of and familiarity with nature that characterizes Mr. Ellwanger's other works are also evident here, and too the same elegant diction and refined literary grace.

FLOWERS AT R. R. STATIONS.—Reference has been made in GARDENING to the attractive flower beds around the stations of the Michigan Central railway. A similar display is to be seen along the Grand Trunk, and it is largely due to the efforts of Mr. Jemmison, an enthusiastic amateur of Port Huron. Mr. Jemmison freely provides flower seeds for the pump men at all the watering tanks along the line, and offers encouragement in every line of gardening. He is especially interested in dahlias, sweet peas, asters and pansies. To him is due much of the increased interest in gardening through his section of Michigan.

BLUE AND YELLOW IN FLOWERS.—A correspondent of the *Garden* in writing of the rareness of yellow and blue flowers "in the same class of plants," mentions "there are yellow and blue columbines, yellow and blue lupines, and yellow and blue polyanthuses." Another writes: "Pansies are the only instance I can recall where the two colors are found." We would remind them that there are yellow and blue anemones, yellow and blue clematis, yellow and blue nymphæas, yellow and blue delphiniums, yellow and blue crocuses, yellow and blue irises, yellow and blue flax, yellow and blue hyacinths, also salvias, asters, scabios, ipomœas, statice, polemonium, gentian, centaurea, aconitum, and lots more.

AN EARLY WALLFLOWER.—There is a good deal of talk just now about an "early" wallflower called "Earliest of all Wallflowers," and of which Sutton & Sons of England, who hold the stock of it, are sending blooms to the various editors. Plants raised from seed sown last May began to flower in September. Good, but is that any better than the "annual" wallflower that we have grown for two or three years and which has been listed in some of our seedsmen's catalogues for two years? It blooms in as short a time and keeps it up too. But everything that the Suttons handle is apt to be good.

THE OLD FASHIONED GARDEN is the name of a little book of poems by Professor John Russell Hayes of Swarthmore College, and published by John C. Winston & Co., Philadelphia. Size 7x4½ inches, pages 101, price 75 cents. Professor Hayes is a great lover of nature, and has given vent to his feelings in poetic note. The book contains sonnets, miscellaneous pieces, verses on flowers and fairies, and some translations, and withal it is a book that will be perused with much pleasure by those who love wild flowers, and popular flowers, old fashioned gardens, and nature generally.

RUST IN BEGONIAS.—The *Gardeners' Chronicle* tells us: "Mr. Michael, the authority on the Acarinæ, informs us that the disease is caused by a mite, a species of *Tarsonymus*, which is so small and so translucent that it requires a trained eye to detect it. Its habits of life also tend to conceal it. The creatures are most destructive to healthy plants, burrowing between the two surfaces of the leaf, and eating out its substance. * * They are most difficult to destroy, but frequent spraying with insecticides may be beneficial. * * All badly affected plants should be destroyed by fire." Fumigation is also mentioned as being efficacious.

RUST ON CARNATIONS.—C. W. Ward of Queens, N. Y. is one of the largest and most successful carnation growers in the country. We asked him the other day what he did to destroy rust on carnations. He replied: "Whenever I find a plant on my place that has got rust on it I pull it up, no matter how good, or new, or valuable or many of it there may be, open the furnace door and chuck it or them into the fire. I don't keep a hospital, I grow carnations for a living and can't afford to have one rusty plant on my place. Further, I can't afford to throw the rusty plants out on the rot or compost heap, where the fungus might live and the spores spread; fire is the perfect destroyer."

TESTING TREES AND SHRUBS BEFORE SELLING THEM.—An eminent nurseryman writes us "We have need to have patience and charity, for we so often are humbugged sometimes innocently, as many nurserymen do not test their trees or plants but put them out through others, descriptions, often erroneous, and so the error is continued from one nurseryman to another, and the poor purchaser is the victim." Reputable nurserymen, seedsmen and florists are just as anxious to know the inside facts, the merits and demerits, of the new plants they sell as are the general public. But as new plants are generally profound secrets till very shortly before they are sent out, all firms try to get a share of the stock as soon as

it is placed on the market, accepting and using the description given of it by the originators. They cannot wait to test it before selling it, lest their competitors should get ahead of them, for the public are on the alert for novelties and will go where they can get them. But the moment our nurserymen and florists get hold of some of the plants they should set out a few on their own grounds for trial.

"X X" CHRYSANTHEMUMS.—In cutting over a lot of chrysanthemums in pots today (December 10) for storing past till spring we noticed that many of the labels had double cross (X X) marks on them; this signified that they had behaved admirably under pretty rough treatment, that is kept in a deep cold pit till now. Those that were most marked had been most cut from, in itself a good sign. They included Gloriosum, pale yellow; Yellow Dragon, deep yellow; W. H. Lincoln, fine stiff habit, late yellow; George S. Conover, fine, round headed, yellow; Judge C. S. Benedict, clear yellow; Mrs. M. R. Parker, Jr., globular, pink, early; Helen Blood, good, delicate fine pink; Silver Cloud, creamy white; Mrs. Higinbotham, very large, pink, slightly hairy, strong, free blooming and doing well outside or indoors; Mrs. Irving Clark, delicate pink, very full, making fine big heads, but a little weak necked; Excellent, light pink on long stems; Mrs. Langtry, white; Cullingfordii, glowing crimson; Brigaud, in the way of, but bigger than, Cullingfordii; and Bronze Giant, an immense full headed flower of crimson and gold. There were lots more, but these are the first ones that came to our memory.

THE GARDEN ANNUAL, 1896, has come to hand. It is published by *The Garden*, 37 Southampton street, London, and costs one shilling exclusive of postage. It contains over 390 pages of closely filled matter relating to horticulture, and gives the name and address of every country seat in Great Britain and Ireland, with the proprietor's and gardeners' names, also the names and addresses of all the florists and nurserymen of the country, and too of all the leading nurserymen, florists and seedsmen of the rest of Europe. And a full list of the botanical gardens of the United Kingdom, India and the Colonies with the names of their officers are given. All of the new plants, vegetables and fruits certificated in London during the past year are enumerated. Among these we find 334 different kinds of plants and flowers, 16 sorts of fruits, and 18 of vegetables. Among the plants we find 5 amaryllis, 13 begonias, 7 carnations, 63 chrysanthemums, 10 dahlias, 8 gladioli, 3 nymphæas, 5 pæonias, 4 sweet peas, 6 roses, etc. Orchids seem to have been particularly prominent. There were 27 cattleyas, 26 cypripediums, 14 dendrobiums, 10 lælias, 12 lælio-cattleyas, 11 odontoglossums, and 3 vandas. In the way of fruits there were 5 apples, 1 cherry, 5 melons, 2 plums, and 3 strawberries; and of vegetables we find 5 beans, 1 kale, 7 lettuces, 1 radish, 1 spinach and 3 tomatoes.

THE NEW YORK GARDENERS' SOCIETY.—A large number of representative private gardeners met in New York on the 21st ult. and organized a society to be known as the New York Gardeners' Society. The object of the members is mutual improvement, professional advancement, a better acquaintance with each other and to secure that recognition in horticulture which should belong to them. The gardeners wish to place floriculture and fruit and vegetable culture on a higher plane than it has ever before been in New York by aiding one another in every practical, consistent way. At their meetings they will give their experience in the cultivation of flowers, fruits and vegetables, and kindred subjects, relate their successes that others may learn, and tell of their failures that others may give them light. They will also bring some of the fruits or failures of their labor to render the discussions the more pertinent and instructive. Recognizing the apathy shown to general gardening in the commercial metropolis of the country, where even no horticultural society exists, the gardeners have determined to urge the co-operation of their employers in bringing before the public in periodical exhibitions that which is best, most beautiful and useful in gardening. And they have resolved among themselves to aid each other into entering into that noble contention or rather emulation of who best can work and grow the most superior fruits, flowers and vegetables. In fine they unite into a society that they may become better men and better gardeners. The next meeting of the society will be held on Saturday evening, 4th inst. All gardeners wishing to join should attend that meeting.

MIGNONETTE IN WINTER is a leading crop with many commercial florists. They sow the seed about the first of August and transplant the seedlings into beds of soil on the benches of their greenhouses, whole houses being devoted to this crop alone. It begins blooming in November. The plants are 9 to 12 inches apart each way. They belong to the Machet section and are very different from the common outdoor sorts; indeed they often grow to be 2 feet high with stems ½-inch thick. They also grow nicely in pots, but of course they make the best flowers when planted out in beds.

BEAUTIFUL CARNATIONS.

From the Cottage Gardens, Queens, L. I., we have received a box of three score very beautiful seedling carnations. Every blossom is perfect in form, and on a long leafy stiff stem. In color they range from pure white, through delicate and deep tinted pinks, scarlet and crimson, and several are variegated and pencilled. Mr. Ward grows carnations splendidly, and he has the best facilities and greenhouses for so doing, and better still he is an enthusiast in this line, and raising new pedigree varieties is a hobby of his. If any of our readers who have never seen carnations grown in thousands for the cut flower market, happen to be in the neighborhood of Queens they should visit Mr. Ward's place and get a practical lesson.

The Vegetable Garden.

MUSHROOMS IN THE BASEMENT.

I wish to raise mushrooms in the basement of a dwelling, but have never tried to grow them. I find full instructions in GARDENING (a complete set of which I have from the first issue), but am doubtful if the preparing of the bed would be wholesome in connection with a dwelling as the basement is used for ventilating the rooms above. Can I prepare a bed and grow mushrooms in the basement without rendering the air above unwholesome? A. B.

Washington.

In an ordinary house cellar from which there is no current of air passing into the upper rooms mushrooms can be grown without any inconvenience as regards noxious gases or smell; but when the rooms above are ventilated from the basement in which the mushroom beds would be made up we would hesitate to introduce them. Under no circumstances should the fermenting manure be prepared for use in the cellar; prepare it out of doors or in some shed or under cover away from the house, and don't bring it into the cellar till it is a condition quite ready to build into beds, then the smell is evident for only a day or maybe two; and after the beds are encased with soil it emits no discernable odor.

WHITLOOF.—T. G., N. Y., writes: "We are enjoying whitloof now, grown in greenhouse and in boxes. It's good, too, as salad." We may say that Whitloof is a large leaved kind of chicory raised from seed sown out of doors in summer as one would parsnips; in fall the fleshy roots are lifted and kept over as one would salsify, except that they are planted in boxes, pots, or beds in the greenhouse and "forced" for their leaves. In forcing they are kept in the dark as one would rhubarb to bleach them and make them tender. They are treated and eaten as a salad. It has been in common cultivation for many years, that is with people who raise winter salads.

SWEET POTATOES, HOW TO KEEP THEM IN WINTER.—James Stewart of Memphis in the *Commercial Appeal* says: "Dig before hard frost, and as soon as possible put in the tubers in barrels or boxes and place in the kitchen, near or back of the cook stove. They will then keep until May or June. There is no danger of getting them too warm. They will not rot, and the last of them will be as good as the first."

THE BEAN MILDEW.—The mildew (illustrated and described in GARDENING, pages 72-73, November 15 last) was almost ruinous to my own and some others' Lima beans. Others' in vicinity escaped.

Plainfield, N. J. E. R.

Miscellaneous.

A LETTER FROM MEMPHIS.

Your display of chrysanthemums, front page, December 15 is grand, but that's bantering us. Were these flowers of longer duration and easier produced we would indulge in them more.

Tell David Fraser, page 100, that he will fail in his rose project. [We don't think so. D. F. has had considerable experience in growing roses and many years in gardening generally.—ED.]

You give us lists of plants in bloom both indoors and outside. Strange to say there is but little taste for such things here. When a fine mansion is built a negro is generally sent to the woods to hunt for a few scrubs courteously called shade trees, and plant them, the grounds are sodded over with Bermuda grass (the worst of all grasses); a wall of stone and iron is built around the front of the property; a straight stone flag pavement is laid from the gate to the house, and all is done. Some indulge in a few flower beds or a border, or a border under the eaves about the house. Evergreens are very little planted, still many kinds thrive gloriously. There is very little variety of

fine flowering shrubs in our gardens, although this is Paradise for them. Most people have a border or a few beds of roses, but seldom give them the necessary care to get the best results from them. We cannot show you much horticultural taste.

Our Irish and sweet potatoes are housed, of kale, winter beets, onions, carrots, and parsnips some have a few, but many have none, even turnips are not plentiful in our gardens You may think this strange considering our splendid soil and glorious climate, but it is owing to the unsatisfactory labor—negro labor. Of late years some Swedes, Germans, Italians, and Scotch have settled here, and it would really do you good to visit their places (though small) and find the abundance, variety and excellence of their garden crops, and the way in which they save, accummulate and use manure But they cannot begin to supply the full demand of our city. JAMES STEWART.

SUPPORTS FOR GREENHOUSE CARNATIONS.

I find that plants of different habits require different supports. For such varieties as Daybreak, Mrs. Duhme, Bridesmaid, Portia and strong stiff growing sorts we have found the inverted V shaped wire netting coupled with the wiring and stringing overhead to be the best support that we have found. For such sorts as Storm King, Scott, Lizzie McGowan, Meteor and tall growing kinds that are inclined to sag down at the base of the plant we have adopted the same wire netting to support the base of the plant and the Excelsior wire ring support manufactured by the Worcester Wire Co. put up at successive heights to support the upper portion of the plant. There are some objections to this Excelsior support, but I think on the whole that the advantages outweigh the objections. By both of these methods no unsightly stakes appear above the plants to shade the ground and interfere with the work of picking the flowers. I believe that these two systems are the best in vogue at the present time, although there is an improvement on the Excelsior stake that makes it a better stake than the Excelsior, but the improvement is rather expensive, but it pays as because it is quite an advantage to have so large a place as ours balanced up with proper labor saving appliances of all descriptions. We think it to our advantage to have the best ventilating apparatus; to have our houses built in a neat substantial as well as durable manner, and to have everything about our place in apple pie order. By so doing we can carry on the work with fewer men and at less expense, and the neatness and cleanliness of the place predisposes our plants to a healthy growth. There is another good wire device invented by W. A. Mills of Port Chester, N. Y., which seems to be a passable good thing. I have never used it, as it was a little too expensive for me.

Queens, N Y. C. W. WARD.

WALLFLOWERS.—A reader writes "Now and again I have seen a wallflower in a pot which showed a loving care by some one who treasured it for old acquaintance sake, but they don't pay." *Ans.* True we do not have here the superabundance of this lovely flower one finds in central and southern Europe, and cannot; but with a little care and trouble we can have nice wallflowers. And if you grow what is called the "annual" wallflower, from seed sown as you would gillyflowers in spring you can have a nice sprinkling of wallflower blossoms, with the true color and fragrance, from late summer all through the fall, till hard frost sets in.

CLERODENDRON TRICHOTOMUM.

We have had this clerodendron several years and find it one of the worst trees to throw up suckers we know. Some twenty years we have tried to destroy it, but it is as bad as the small perennial morning glories to kill. We bought the first plant under the name of *Catalpa Bungei.* Two years ago seeing this clerodendron praised we sent and got it, and behold it was the same tree we had so long been trying to eradicate ISAAC HICKS.

True, *Clerodendron trichotomum* suckers badly, so do *T. viscosum* and *T. fœtidum,* also hardy shrubs. But like the locust, the trumpet creeper and the angelica tree (*Aralia spinosa*), when it is allowed to grow unchecked, it does not sucker so much as when it is cut down. For large gardens and parks because of its bold foliage and late (September) blooming qualities we have room for it, but on account of its suckering habit, large spreading size and bad smelling leaves we should advise against its being planted in small gardens. Nicholson in his "Dictionary of Gardening" describes it as "a very handsome hardy shrub." Professor C. S. Sargent in his "Forest Flora of Japan," page 53, refers to it as "the beautiful *Clerodendron trichotomum* which in late summer enlivens the banks of streams with its great masses of tropical foliage and brilliant flowers, and in Yezo often attains to the size and habit of a small tree." Veitch & Sons of London in their last catalogue give it a leading place in their select list of trees and shrubs, and say "The flowers appear in September and are produced in large terminal cymes; they are white with a purplish calyx, and delightfully fragrant. It is thence one of the most distinct and useful hardy shrubs."

The whole plant is not at all unlike a catalpa, indeed in foliage it is very much like the dwarf catalpa known in gardens as *C. Bungei.* How this dwarf catalpa which is only a form of *C. bignonioides* get the name of *Bungei* we do not know, the true *Catalpa Bungei* being a large tree and a native of China. *Clerodendron fœtidum* is also called *C. Bungei.* It also suckers freely, indeed, it always gets killed to the ground in winter with us, but in the form of many suckers it appears again in spring, blooming in early fall. Its foliage has no resemblance to that of a catalpa, however.

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Plainfield, N. J.

RABBITS, TO PROTECT FRUIT TREES FROM THEM IN WINTER.—In hard winters and in localities where the winters are severe rabbits are often very destructive to young fruit trees, especially in orchards, by gnawing the bark near the ground, often girdling the tree, to its great injury if not its death. The following preventives are given by Prof. J. L. Budd of Ames, Iowa, in *Rural Life*: "We have used successfully a wash of fresh lime thickened with flowers of sulphur, with an ounce of carbolic acid to a pail full of wash. This is put on the stems and main branches in the early part of November and again on a pleasant day early in January if the autumn wash has scaled or partially washed off by heavy rains.

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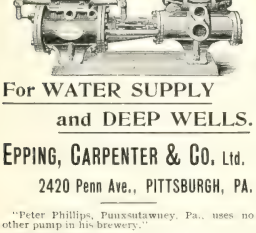

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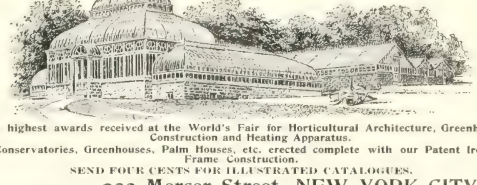

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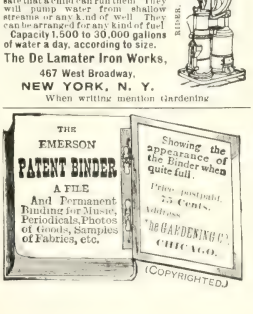

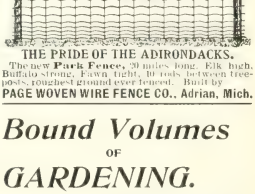

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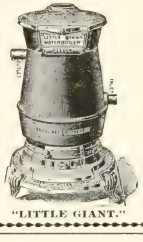

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Price, strong young plants, 30c. each; $3.00 per doz. Extra size plants, 50c. each; $5.00 per doz.

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GARDENING

Vol. IV. $2.00 A YEAR. 24 NUMBERS. CHICAGO, JANUARY 15, 1896. SINGLE COPY 10 CENTS. No. 81.

REX BEGONIAS AT MR. BRAMHALL'S, ORANGE, N. J

The Greenhouse.

REX BEGONIAS.

The varieties of Rex begonias comprising the group in the photog aph, and in their order from right to left are Madame Siebold, Louis Closson, Prince Bismarck, and President Carnot. They were all grown from cuttings made about eighteen months before the photograph was taken. Of this numerous family, we find these particular varieties to be the most satisfactory, both in leaf and flower. They not alone are effective in grouping with palms in the greenhouse, but when not kept too long in the dwelling, are adapted to use as house decorative plants. They also have the merit of cheapness. The large plants in the photograph are in 6-inch pots, and are grown in a compost of one-third each of leafloam, thoroughly rotted manure and good garden soil. We give them plenty of water at the roots, and find they thrive in a high and humid temperature, and shaded from the direct sunlight. FLORAGOL.

South Orange, N. J., December 2, 1895.

BEGONIAS.

I have given my begonias full sunshine, shade, plenty of water, and no water, but under all circumstances they refuse to thrive. *B. rubra alba* sheds the healthy fresh green half grown leaves, but continues to form new ones only to repeat the performance. *B. alba picta* is beginning to do likewise. They have a soil of black prairie loam and sand. I use Bowker's food for plants. Is *B Rex magnifica* a vigorous grower? I have had one over a year and it has two leaves. E. B. A.

Hammond, Ind.

There is something radically wrong with all of your begonias, and we cannot tell what it is. But we can advise you in a general way. Turn them out of their pots to see what like their roots are; if these are dead or rusty, and at the base of the plant there is decay or rust in the stem or rootstock, we would dump them out, as not being worth the bother of trying to recuperate, indeed the trial is apt to fail. And we would send to the

Storrs & Harrison Co. or Vaughan for a few young healthy plants. All of your begonias prefer shade, but not dense shade. They like a moist atmosphere, a moderate amount of water at the root, but not overhead, and in watering never pour the water on to the stem in the middle of the pot, pour it more to the side. Black prairie soil if of a waxy tendency isn't good, no matter if mixed with sand. Pity you didn't have some surface soil from the woods, surface soddy scraping from a field or roadside, something that would be free and porous, but not loose or chaffy. Use comparatively small pots, well and clean drained, and pot firmly. Keep the plants rather warm in winter, but never let them wilt for want of water; screen them from sunshine, and keep them out of draughts, be they cold or not. Bowker's fertilizer is excellent for well plants, but a manure stimulant of any kind is very poor medicine for a sick plant.

A HOTBED HEATED WITH HOT WATER.

What do you think of the advisability of making a range of hotbed frames against the sides of a greenhouse, inclining the sash away from the greenhouse, abolishing the use of manure and obtaining heat from hot water pipes passing through the greenhouse walls? I understand it has been successfully done, the pipes being carried along the sides above the soil. A READER.

Such frames are an everyday occurrence and work splendidly, and they do away with a vast amount of laborious work. But let us explain: The heat of a regular hotbed is bottom heat, it comes from the fermenting manure in the bottom of the frame and under the surface coating of soil, and it keeps the air between the bed and sash warm, moist, and genial for most all young plants usually grown or started in frames. The bottom heat is a great impetus to the growth of roots, hence of tops, but by careful ventilating we can manage to keep the top air cool enough so that the plants will assume a sturdy, stocky growth and not a spindly one. But the heat is unsteady. To begin with it is quite brisk, but in a few weeks it cools down so much that we have to use extra covering over the sashes to keep the beds warm enough in cold weather. Hotwater pipes carried above the ground have a very different effect, it is simply a heated frame and if we warm the pipes, say keep them at 125° or 130°, while we may not raise the temperature above 60° we would soon ruin everything in the frame by the parching breath of the pipes, and red spider would abound on everything that it would live on. But if you dig out the frame deep enough to allow of an air chamber under the bed of the frame and run the hot water pipes in that chamber, you get the bottom heat and the genial moist top warmth as well, even better than that of the manure heated frame, for it will be steadier. For covering the air chamber under the frame don't use close boards, for they wouldn't admit the heat fast enough; use narrow boards leaving them ⅜ of an inch apart, then spread a layer of straw over them under the soil, this admits the heat and affords perfect drainage. And thin slate is better than wood. You may also run a pipe as you suggest to the outside above the bed, but never heat it hot, 100° to 110° is hot enough. If your idea is to have a heated frame, that is one in which you can winter geraniums, cannas at rest, or miscellaneous low growing plants or grow violets or anemones or the like in by all means do as you suggest, but don't use a bit more fire heat in it than you can help, and to aid you in this, in very cold weather unroll a strip of matting over the sash or use shutters on them, they will greatly help in preventing ice forming on the glass. Plants keep excellently in such a frame. At Dosoris we have a string of them 120 feet long, heated by one run of 4-inch pipe.

THE BEST PALMS, FERNS, DRACAENAS, ETC. FOR HOUSE PLANTS.

Mr. James Dean of Bay Ridge (part of Brooklyn) N. Y., is one of the oldest, largest and most successful growers of these plants in the country, making a specialty of them and growing them in thousands and of all sizes for the New York market. He sells them in wholesale quantity and as required to the retail florists in the city, who dispose of them to their customers for dwelling house decoration, for in the house of every refined family in New York living plants—palms, rubber plants, screw pines or ferns are used, and regarded as being as much an article of necessary home decoration as the pictures on the walls. Long experience has taught Mr. Dean what plants are the best for this purpose, and he confines himself mostly to these. We have asked him to tell us about them, and in the following notes he kindly accedes to our request. We know the man and assure you when he speaks we listen.

The following plants I believe to be the best for use in dwelling houses, and they are all standard varieties of easy cultivation, and can be had from the florist at reasonable figures; indeed after years of trial they still head the list. In fact they are the only ones that we can sell to the city florists in quantity. In growing palms for use in house decorations they should be grown in a cool temperature, not over 60° at night during winter, and in summer they should have plenty of air which induces a stocky growth, this will enable them to stand the dry air of the dwelling house: *Kentia Belmoreana*, *Kentia Forsteriana*, *Latania Borbonica*, *Areca lutescens*, *Phœnix rupicola*, *Cocos Weddeliana*.

Phœnix rupicola can be used when there is not much light to be had better than any of the above. *Kentia Forsteriana* will do fairly well in halls when the light is poor. If but one palm can be used take *Kentia Belmoreana*, and so follow down the list.

The best screw pine is the green leaved *Pandanus utilis* by all odds. Give it a sunny warm place in the room and it will do well.

The best dracænas are *D. terminalis*, *D. fragrans* and *D. Lindeni*.

The best fern is *Nephrolepis davallioides furcans*. As smaller plants of ferns for ferneries and as small table plants I use *Pteris serrulata* and its variety *cristata*, and *Pteris albo lineata*.

Araucarias, especially *A. excelsa* and its variety *glauca*, make splendid plants for house decoration.

Fartugium grande, an old fashioned and much neglected plant, is also an excellent house plant and equally good for the garden.

An open window on the shady side of the house on a cold morning, while dusting and cleaning the rooms, is the cause of many plants being lost; if they are not frozen they are chilled so that they never regain their health; they should always be removed from the window before it is opened on a cold morning. All house plants should be taken to the bath room once a week and swished through tepid water to remove the dust from them.

JAMES DEAN.

Bay Ridge, N. Y., January 6.

DRY BULBS.

Look over the bulbs and tubers that you have stored dry in your cellar, store room, or potting shed, to see that they are keeping well, that frost does not reach them, drip fall on them, rot start among them, or that they do not become shrivelled by over-dryness All those that were grown in pots and are still in them but dry and at rest, for instance gloxinias, achimenes, caladiums, gloriosas, begonias and gesneras, may remain as they are so long as they are doing all right, keeping plump and fresh and not starting to grow. But if you need the pots for other plants you can shake the gloxinias and begonias out of theirs, and pack the tubers in flats, close together heads up, and one deep, with a little sand or soil under and over them. Then keep them dry as before. But avoid over dryness. Better give them a sprinkling of water every now and again to keep them plump than allowed them to shrivel in the least, and if necessary check their growth by keeping them a little cooler Begonias keep well in a temperature of 40° to 50, gloxinias in one of about 55°. The achimenes, gesneras, and caladiums may also be turned out of their pots and stored in flats in the same way, but there is less risk in letting them stay as they are, and even if we turned out the achimenes we would let the balls of earth remain intact. As our greenhouses are pretty well filled up now, and when we begin propagating plants for our summer gardens they will be still more crowded, we should avoid rushing any more dry bulbs and tubers into growth than we really need. But pot up some gloxinias for bloom in April; and whatever amaryllises are pushing up new leaves or showing flower scapes, should be brought up from their resting place and set on the stage where they can get a little water and have light and warmth.

CHINESE PRIMROSES.

Our greenhouses are quite gay with the finer varieties of what are known as Chinese primroses (*P. sinensis* vars.), and also with *Primula obconica* and *P. Forbesi*, both of which are likewise Chinese species. It pays to get the very finest varieties of Chinese primroses; get each color by itself; mixed seed contains a good many poor reds. And it takes just as much time, room, and pains to grow poor varieties as it does the best sorts.

Our obconicas are the large flowered strain like what you grow at Dosoris. They were sown in pots in the greenhouse in spring, and pricked off into flats when large enough to handle, then potted off singly into 2½-inch pots, then into 3 to 4-inch ones, and finally into 5s. During the summer months we kept them in a well ventilated, in fact almost uncovered, cold frame, giving them plenty water at all times, and shading them from bright sunshine.

But *Primula Forbesi* is my favorite, what a gem it is! I shall grow a lot of it next season, it is so beautiful, so full of flowers and long in bloom, and when cut its blossoms last better than even those of *P. obconica*. It is excellent as a window plant. We sowed the seed of it on April 15 last, in a pan in the greenhouse; it was slow to germinate. When the

seedlings came up we pricked them off into another pan, using fine, light soil, and after they had a good start potted them off singly into 2-inch pots. They were then put into a shaded cold frame out of doors for the summer, and potted on as their advanced growth suggested till they were in 4½ or small 5-inch pots. They don't like much pot room; overpotting is apt to rot them off at the roots and neck. I have found that they grow better in a south-facing window of a dwelling house than in the greenhouse, and now it is for window plants particularly that we grow them. In a cool greenhouse though, such as gardeners grow cinerarias, calceolarias and the like in these primroses do splendidly.

Primula floribunda. Among the seedlings of *P. Forbesi* there came up a plant of this yellow flowered little beauty. Noticing that it was distinct from the others we were very careful of it, and now that it is in bloom we have identified it. It is a charming little plant with small yellow flowers in whorls on long slender scapes, and a great profusion of them. It is a native of the Western Himalayas. We treated it exactly as we did *P. Forbesi*, and so well has it behaved, that I intend to have a good many more of it another year. DAVID FRASER.

Mahwah, N. J.

THE GARLAND HEATH (*Erica persoluta*).—S., Hamilton, N. Y., asks: "Will you please tell me the name of this shrub (sprig enclosed), where I can obtain it, and how it is propagated and cultivated?" It is a little greenhouse heath, with tiny bell-shaped flowers, and a good deal grown nowadays by some florists for marketing, when in bloom, at the city florists' stores. Florists who deal in geraniums, fuchsias, carnations, roses and the like for sale as little plants seldom handle these heaths, for they require special care both in propagation and cultivation; in fact the men who handle them are generally specialists, and they grow them well and get good prices for them. Apply to some one of the leading New York cut flower stores; in fact, if you are in the city about this time drop into one of these stores and you will probably find some of these heaths there. They are propagated from cuttings taken off as soon as the plants are out of bloom, and put into pots or pans partly filled with clean sand pressed very firm. Glass panes or preferably bell glasses are placed over the pots till the cuttings begin to root; they should be taken off and wiped dry every day. Pot off the rooted cuttings singly into small pots and plunge these evenly in a cold frame, repotting as required. For soil use two parts sifted peat of good quality, one part loam and one part clean sharp sand; if you haven't any peat in place of it use very finely rotted leaf soil. Don't use manure of any kind. All through their life keep the plants as cool as practicable without letting them freeze, and in an open airy place, and while you must be exceedingly careful about watering them never let them get quite dry. Drain the pots thoroughly.

PIPING FROGS.—Mr. J. Jensen, Humboldt Park, Chicago, writes: "In GARDENING, page 104 December 15 last, you ask, why can't we have some of these piping Coqui in our big greenhouses too? But how or where are we to get them?" *Ans.* Can't some of the U. S consuls in the West Indies help you? If not, try the director or curator of some of the Botanical Gardens in the British islands there, say Jamaica or Trinidad. Or maybe Siebrecht & Wadley, florists, New Rochelle, N. Y., who also have nurseries in Trinidad, might be able to get them for you. These little frogs would be unique in your greenhouses, exceedingly interesting to visitors and beneficial to the plants, being persistent insect consumers. We hope you will try to get them and be successful in introducing them.

AGDESMIA CLEMATIDEA.—F. E. S., Utica, N. Y., writes: "I have some tubers that were sent me under above name. Is this the same as *Adesmia*? Kindly give me a few hints as regards its requirements." *Ans.* We know of no such genus as *Agdesmia*, and it is not given in Bentham & Hooker's *Genera Plantarum*. *Adesmia* is a genus of pea flowered shrubs or trailing plants from South America, and not likely to be "tuberous" rooted. Prof. Theo. Holm of Washington, to whom we referred your inquiry suggests that your plant is possibly an "*Agdestis*, which belongs to the poke weed family. It is a graceful vine with tuberous roots like those of a beet. The flowers are showy and the plant well worthy of cultivation. It is a native of Mexico."

CRINUM BULB, HOW TO TREAT IT.—J. B. G., Flushing, N. Y., asks: "Will you kindly tell me how to treat a crinum bulb? I have no facilities for growing plants except a hotbed in the spring, and later a garden." *Ans.* Pity you did not say what species it is. Let it stay dry all winter, either in or out of the pot, and be sure you save it from frost. If it is in a pot bring it up to the light in April, and about the end of May set it out of doors and give it lots of water. But if the bulb is lying by dry now like a gladiolus or dahlia let it stay so till about the middle of May, when you may plant it right out in the garden. Don't put it in your hotbed in spring.

HEATING A GREENHOUSE.—E. M., Beaver Falls, Pa., has a lean-to greenhouse 48 feet long by 12 feet wide divided into two compartments, one to be kept warmer than the other, and he wishes to know what quantity of 2-inch hot water pipes would be required to heat it properly. *Ans.* Ten lines of pipe in the cool end and twelve lines in the warm end will easily maintain a temperature of 50° to 55° in the cool compartment and 55° to 60° in the warm one in zero weather. Altogether, with cross pieces, this will require about 583 feet of pipes, besides the necessary valves, fittings and expansion tank.

WHITE WORMS IN CARNATION SOIL.—A reader in Cleveland, Ohio, white: "I have some small pure white worms in my soil that kill my carnations, how can I destroy them?" *Ans.* You should send us specimens in a small tin or wooden—never paper—box. Try clear, fresh lime water. Carnations rather like than object to lime, but be careful to begin with. The lime water should be made from hot stone lime and not from air slacked or old lime, and the water should not be milky white, it should settle till clear. Rather use it under than over strong.

Aquatics.

AQUATICS—CARE OF IN WINTER.

I have just sown the seeds of the *Victoria regia*, this is a little earlier than I used to, but as it is such a slow grower in order to have good sized plants to plant out in the pond by the end of June we must get the seeds started early in the year. We sow them in a pan filled with ordinary good potting soil and submerge the pan from 3 to 4 inches in one of our heated tanks in the greenhouse, where the water is kept as near 80° as possible; if it falls to 70° occasionally it won't hurt, but it should not fall below this where the plants are young. After they get older a fall to 60° for a short time won't hurt them. It is better, however, to keep the water as warm as 80°, and from that to 90°. If one has not a tank heated by the steam or hot water pipes passing through it a very simple and yet satisfactory way is to get a small oil stove and a tank about 2 feet square and from 9 to 12 inches deep, place the oil stove underneath the tank and regulate the flame so that it will keep the water at the desired temperature. One should try the working of this plan several days before placing seeds in it, as the water might get too hot and kill the seed. And also, the larger the tank is the less attention it will require, as the greater the body of water the less fluctuation there will be in its temperature, and yet one must not have a tank so large that the stove cannot heat it without burning a full flame. You can get an evener heat by keeping your light low, and also less oil fumes and smoke. After the seed germinates it should have the full sun and be raised so that it will be near the light; but after the young plants have made a few leaves they will do very well further from the light.

We have also quite a number of *Euryale ferox* growing beautifully. This plant while useful in a very large pond is not worth the space it would occupy in a small basin or pond. The flowers are small, only about 2 inches in diameter, of a deep violet color, and in no way pretty; it is rather a disappointment to every one seeing it for the first time, for when you see the large leaf, 2 feet in diameter, it is but natural to look for a large flower. The seeds germinate very easily, in fact it is hard to keep them from growing. I saw some a few days ago that had been placed in a glass of water in a living room to be kept until time for sowing, and a great number of them had already germinated and the seedlings were about 1½ inches long.

Besides these I have also started some seed of *Nymphæa Zanzibarensis* and its varieties *rosea* and *azurea*. I start these early so as to have a good number in flower when I plant them out in the pond in June. But seeds of these three can be sown any time between now and March, for they are easy to grow and very satisfactory bloomers. The seed is very small, about the size of mustard seed. A good way to start these seeds if you have no tank is to get your potter to make you some 9, 10 or 12-inch fern pans, but have him leave them without drainage holes and glaze them for you. Such pans are very handy to start water lily seeds in, and I often use them in preference to the regular tank. Fill them half full of good loam and well rotted cow manure that has been put through a fine seive. (Half loam and half cow manure are what I use) then sow your seed and fill almost full up with water; then stand the pan on the bench of an ordinary greenhouse where a temperature of from 60° to 70° is maintained. In about ten days you will see the seeds have germinated. At first it is hard to detect them, they are exactly like hair or grass. I believe in leaving them in the seed pan until they get quite strong, say having four tiny

leaves; in this stage they are easily transplanted into other pans or boxes, about 2 inches apart, and from then on they must be shifted as they require it until you have them into their blooming pots or boxes. I flower them in 9 and 12-inch pots and a good number in the ordinary soap box which we find a good size for the above varieties.

If there is no tank in the greenhouse get a whiskey barrel and cut it in two, it will do admirably for your young plants when they need more room and it can be placed in some corner of the greenhouse where the plants will get good light. The same treatment holds good with *N. dentata* and any of the other varieties seeds of which are commonly offered for sale, but I would advise beginners to try only *N. Zanzibarensis* and its varieties *rosea* and *azurea*, and *N. dentata*, all of which are easily raised and with a little intelligent care will give satisfaction.

I raise all my plants of the following kinds from tubers that have been kept in moist sand under the greenhouse bench, since being lifted from the pond (the sand is just kept moist enough to prevent dry rot), *N. dentata*, *N. Devoniensis*, *N. rubra* and *N. gigantea*. These I start into growth about or soon after the middle of January. We put a few tubers in a 7-inch pot filled with the same soil as above, only coarser, and place the pots in a tank about 3 or 4 inches under water, where a temperature of 65° to 70° is kept. Soon the tubers begin to grow much like a potato, and from these sprouts roots will strike down into the soil from the first joint. After they are well rooted and good sturdy plants they can be severed from the tuber and potted off separately into 3 or 4-inch pots, and submerged in the tank about the same depth. One must be very careful not to detach the young plant from the tuber too soon or you will probably lose it; leave them until they have made four good leaves and you will be sure of success. The same tubers will start and grow again so that you will get several crops from them. We like to start all these tropical varieties towards the end of January, as we aim to have nice plants in 5-inch pots when planting them out into the pond; by so treating them we get them to flower sooner, and thereby lengthen their season of blooming out of doors. This winter I have not flowered any in the greenhouse, as our tanks are well filled with seedling hybrids that have not flowered as yet, and therefore we had no room for flowering plants. The best variety I ever grew for winter flower was *N. O'Marraana*, it was never out of flower.

Last fall I lifted all of my *Zanzibarensis* variety after frost, and cutting off the leaves and roots threw the plants into a tank, meaning to look over them at my leisure to get the young tubers from them; about a month later I went to overhaul them when to my surprise they commenced to throw out new leaves and roots, I took off all the young tubers and threw the old ones back into the water again to see what they would do. They still kept growing so I potted them up, and they are doing well and promise to make nice plants.

The hardy lilies such as *Nymphæa odorata*, *N. odorata rosea*, *N. o. Caroliniana*, *N. o. exquisita*, *N. o sulphurea*, *N Marliacea chromatella*, *N. Marliacea rosea*, *N Marliacea carnea*, *N. candidissima*, *N. alba*, *N. pygmæa*, *N. Laydekeri rosea*, *N. Helvicla*, *N. Mexicana*, with the different kinds of *Nelumbium* we have, we leave in the outdoor pond all winter, as we find they do much better so treated than if they were lifted and stored in the cellar or greenhouse. We have no less than 12 inches deep of water on top of them, and very rarely we have more than 6 inches of ice. We do not disturb the plants until April, when we draw off the water and leave only enough to keep the fishes from suffering, then we overhaul all the boxes the lilies are in, add fresh soil where necessary, and move any of the hardy ones we wish moved. Then the water is turned in and won't be drawn off again. When we plant out the tender ones we do so from a small flat bottomed boat kept for going about among the lilies.

Washington, D. C. PETER BISSET.

Orchids.

ORCHID NOTES.

The following orchids are now in bloom on this place: *Lælia peduncularis*, a pretty free flowering species with delicate rosy purple flowers. It does best in shallow baskets with very little potting material.

Cypripedium venustum pardinum, a variety with prettily mottled foliage; flowers yellowish green and black. It does best in small pots in a cool greenhouse. *C. tonsum*, a stove species with ornamental foliage.

Cymbidium Lowianum, a fine winter flowering orchid requiring pot culture.

Cattleya speciosissima, a showy large flowered species, and *C. Eldorado*, another showy one with a deep golden lip. These two species require basket culture and a rather warmer temperature than *C. Trianæ*. *Cattleya Trianæ*, the most reliable of the winter flowering cattleyas, and essentially the florist's cattleya, does best with pot culture.

Dendrobium Wardianum, *nobile*, *fimbriatum* and *lituiflorum candidum* are coming into bloom. *Dendrobium fimbriatum* is a handsome species, and flowers only on the pseudo-bulbs that are two or three years old. *D. lituiflorum candidum*, like *D. Wardianum*, flowers on the current year's growth, after the leaves fall.

These dull months afford an opportunity to repot, clean and wash the orchids. The only insecticide I use is carbolic soap—the finest grade of such as is used for washing animals—about two ounces to a gallon of water.

WM. FITZWILLIAM.

Baronald, N. J., Jan. 8, 1896.

Chrysanthemums.

HOW I GROW CHRYSANTHEMUMS.

In December and January I take cuttings from the suckers for plants intended for standards, as I find it necessary to root them early for this class. They are potted on as required till they get the final potting into 10-inch pots about the first of June.

Before throwing out the old plants in December I secure pieces which are potted into 6-inch pots for stock. These are kept in a light place, in a cool house where they will make stocky, robust growths for cuttings In February I put in cuttings of varieties which are suitable for bush plants. In March another batch is rooted for planting outdoors to be covered with canvas when they come into bloom in the fall. At the same time all the stock plants are placed outside in cold frames—as the great majority are not suitable for large specimen plants—and kept over till June. From those planted outdoors, and those in the frames I take the cuttings for 6-inch pot plants in June—those in the picture (front page December 15, 1895) were made the 15th, though I think now that June 1 is about the right time. If rooted earlier and grown to one stem and disbudded to one bloom they will be likely to grow too tall for a private place.

I root the June cuttings in the propagating house—which faces the northwest—and give air night and day, and keep the tops as cool as possible, but give a little bottom heat till they emit roots. They are potted from the bench into 2-inch pots; from these into 4-inch pots, and when they fill these with roots, get their final shift into 6-inch pots. In some years when I was busy I repotted them from 2½-inch pots into 6-inch ones, but they never did as well as when I took the little extra trouble with them. The 6-inch pot plants are grown altogether indoors in a light airy greenhouse. They are syringed twice a day during the hot weather, that is in the morning and at noon, as the evaporation is very great at that time of the year. The potting compost consists of three parts good turfy loam and one part well rotted cow manure to which is added some sharp sand. The pots are well drained, using a little swamp moss over the drainage, and they are washed clean when used for the last shift.

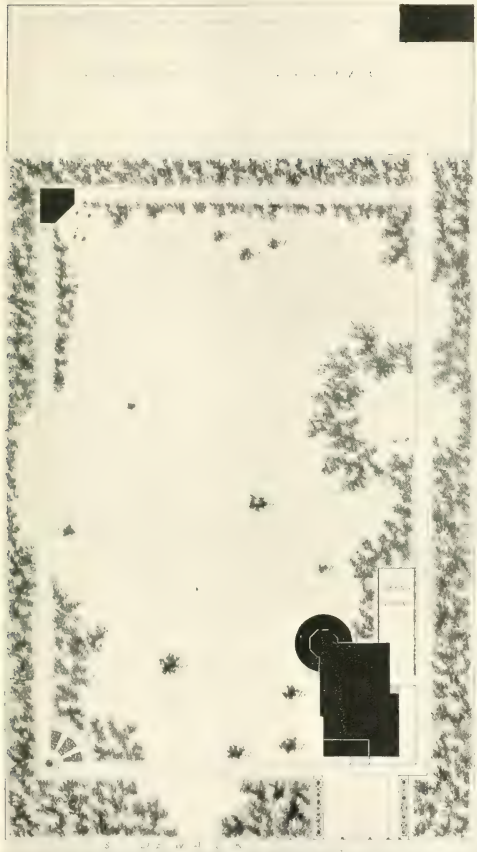
The only artificial manure I use is sulphate of ammonia. I use it in this way: I put some cow manure in a bag and place the same in a barrel and fill with water, and put the full of a 3-inch flower pot of sulphate of ammonia in the water. I alternate the cow manure every week with sheep manure. I never attempt to give it to the plants till their pots are well filled with roots, and discontinue the sulphate of ammonia when the flower buds show color. Be very careful of overwatering as soon as the plants set their blossom buds; they will not take near as much water at this time as they would a few weeks before, and if over watered their roots will decay. The greenhouses in which they bloom are slightly shaded with whitewash after the flowers open to prevent the color of the blooms from fading prematurely, as the direct sunlight has a bad effect on the dark colored varieties especially. [The above is in response to inquiries from some readers who were particularly anxious to know how Mr. Farrell grew such splendid flowers as those shown in our front page illustration, December 15.—ED.]

Orange, N. J. JOHN FARRELL.

Landscape Gardening.

PLAN FOR A LARGE CITY PLACE.

The accompanying plan designed by Mr. H. A. Caparn of my office I think an especially good one—very original and artistic—and properly carried out would make a very charming garden. It is designed for a city home, rather than a country one, where it is desirable to secure privacy from numerous pedestrians and to conceal from view surrounding streets and buildings. Some would object to arrangement shown on account o



PLAN FOR A LARGE CITY PLACE

its exclusiveness, but after the making of many gardens I am still of the opinion that privacy is one of their best qualities. Mr. Caparn explains his plan as follows:

"This plan is for a place of average shape and about two and a half acres in area. The unusual location of house and lines of walk will show that economy of space is quite consistent with convenience and breadth of effect. Picturesqueness is obtained by arrangement of planting, not by meandering of sinuous ribbons of gravel. By placing the hous in the corner the greatest possible extent of unbroken lawn space is secured, while the porch fronting the lawn is as private as it could be on a place of this size. The lawn runs up to the house unimpaired by any stripes of arid pavement, and the lines of the house are relieved only by the creepers covering it (Boston ivy on the walls and clematises, wistarias and Hall's honeysuckles on the porches) and the tall conifers to the south of the house.

"This kind of design is suited only to land level or approximately so, but within those lines could be easily adapted to many places. An ideal contour map would show the lawn gently sloping from all sides to the middle with the walks on level ground. Along the front boundary runs a wall or iron fence, the entrance is through iron gates into a court large enough to admit of a carriage being turned. There is a smaller gate admitting pedestrians to a paved walk leading to the front and back of the house. The carpet bedding on each side of the entrance court is justified by the formal lines of building and macadam which it supplements. The shrubbery behind it sets it off and separates it from the main part of the grounds. The drying ground is enclosed on three sides by a hedge or vine-covered trellis. The stable is placed at the corner of the vegetable garden and entered from a side street, thus being kept entirely away from the house; but if the place were not on a corner the stable could be placed opposite the drying ground and the paved walk widened to allow the passage of vehicles.

"The interest and value of the vegetable garden could be added to by borders of annuals, herbaceous and tender plants for cut flowers, grape vines and dwarf fruits. It is enclosed by a wall. A hedge would be a good protection, would look better and be far cheaper, but would take several years to become an effective defence. If the walks are made wide enough to admit of a horse and cart being used in the garden, 6½ feet will be wide enough for them and the inner corners should be rounded a little to allow for turning; in this way manure may be carried to all parts of the garden with great convenience.

"If desired, breaks could be left in the shrubbery to admit views from the street without injury to the general design."

EXPLANATION OF PLAN.

1. Japan maples.
2. *Retinospora obtusa.*
3. *Magnolia conspicua*, Yulan magnolia.
4. *Magnolia parviflora.*
5, 5. Shrubbery with small trees and groups of large herbaceous plants in the margins.
6. *Abies orientalis*, oriental spruce.
7. Rollison's arbor vitæs or golden retinosporas.
8. Nordmann's fir.
9. Scarlet maple.
10. *Andromeda arborea.*
11. Balsam fir.
12. Norway spruce.
13. *Picea pungens*, Colorado blue spruce.
14. Purple beech.
15. Irish juniper and beds of herbaceous plants.
16. Vine-covered summer house.

J. WILKINSON ELLIOTT.

Pittsburg, Pa.

A SANDY KNOLL AS A RESIDENCE SITE.

I am thinking of purchasing a piece of ground, covering two and one-half acres outside of this city and erecting a building thereon, suitable for a suburban home. The land is a portion of a sandy ridge or knoll, partly covered by medium sized oak trees. The site offers a beautiful location for a house, as it is several feet higher than the surrounding land thus ensuring perfect drainage at all times. The knoll is composed of a fine yellow sand of a depth in highest part, where the house would stand, of about seven feet, then tapering off towards the rear to say a foot or so, the whole piece being more or less sandy. N w. what I want to know is would you consider it a desirable site? Is it possible to grow sod on such land by covering it with a top dressing of clay, and what depth of that would it

require; also what trees and shrubs would succeed best in sandy soil of the nature I have described? I might add that there is a sod on it now, covering the surface to a depth of about three inches, formed by the growth and decay of vegetable matter during many years, but the sod is thin and weakly in appearance as though more nourishment were necessary. OAK KNOLL.

Michigan.

Probably an excellent situation for a house, but not a promising place for a garden. Many trees and shrubs can be grown in such a place, so far as the soil is concerned, if it have a little help as you suggest; the main question is one of water in summer. We would rather have the peaty or humous cleanings from a swamp or pond than clay to mix with the soil, and would put it on from four to ten inches thick, working it into or mixing it with the dark soil on top of knoll, but not bury it into the sand. If you have clay use it in the same way, but four to six inches deep of it may suffice The cost of this surface coating may be estimated easily enough if you contract for it at so much per cubic yard delivered. Of course you will save all the surface soil that comes off the ground where the dwelling and other houses are to stand, also where the roads are to be cut out. In planting trees and making shrubbery belts it will be useless to plant in the sand, you will have to dig out wide fairly deep holes, remove the sand, and fill up with better soil and then in summer mulch the ground with a good coating of sedge, swamp hay, rank manure or something of that sort, to keep the ground cool and moist and catch every drop of rain that falls. Then how about the roadways? As the ground is now they are apt to be a sand bed in summer.

If you give it the above surface dressing you can raise a fair grass sod on it in summer, so far as the soil is concerned, but as the subsoil is so porous and the situation exposed probably the grass may, to a considerable extent, burn out in summer.

As regards a list of trees and shrubs for such a place read what Robert Douglas of Waukegan, Ill., says about "Trees that thrive in sandy or gravelly soil" in GARDENING, page 212, April 1 last; also what Warren H. Manning says, page 120, January 1 last If you want anything more specific please write to us again.

Trees and Shrubs.

SELECT HARDY SHRUBS. I.

Allow me to bring to your notice a few of the best hardy shrubs, new or old, for planting in our gardens. It is a good time now to study this question and prepare for planting in early spring.

BERBERIS SIEBOLDI, a barberry from Hakodate in Japan, is a first class medium sized shrub with larger leaves than those of our common barberry, pale yellow, fragrant flowers, large orange red fruit, and in fall it has the most brilliantly colored foliage of any of the genus in cultivation. And it is very hardy.

BERBERIS THUNBERGII, also from Japan, is the most indispensable species of all. It is a middle sized bush, 3 feet or a little more in height, with wide arching branches. The leaves are small, but numerous, the flowers pale yellowish and in great profusion; its foliage stays on the plant long in the fall and assumes a vivid hue, and its bright orange scarlet fruit hangs on the bushes from fall through the whole winter. It is quite hardy, and makes an excellent shrub for a low hedge.

CALYCANTHUS FLORIDUS is the favorite sweet scented shrub or strawberry scented bush. It has almost double, chocolate colored flowers in spring and all summer, and soft leaves, downy underneath. A goodly sized, native shrub.

CLETHRA ACUMINATA from the Carolina mountains has spikes of white flowers in July. It is a middle sized shrub with larger leaves and flowers than has *C. alnifolia*, which is the common species in the eastern states.

CYDONIA OR PYRUS JAPONICA, the Japan quince, is too well known to need reminding you of. It flowers from April into and through May, having according to variety crimson, orange, scarlet, pink, blush or white flowers. It is hardy and useful as isolated specimen plants or untrimmed hedges. [If you want a vivid deep crimson beauty be sure you get the variety called Simoni.—E.]

CYTISUS NIGRICANS is a very desirable, low growing dense habited broom with small leaves and slender branches covered most of their length with bright yellow blossoms in June. Fine for small gardens.

DEUTZIA GRACILIS is still the gem of the genus. It is a dwarf, very compact shrub with a wealth of racemes of white flowers in May, being in fine bloom about Decoration day. If you wish to have it in perfection give it plenty room, good deep soil, and water in summer. Among other short stemmed kinds are

DEUTZIA PARVIFLORA, a Chinese species. Its habits of growth remind one of a spiræa, so too do its axillary umbels of pretty white blossoms all along its last year's shoots. It flowers at the same time as *D. gracilis*, but amateurs should get them both, because while both are good they are very unlike each other. Don't crowd it away among big shrubs, but give it a good place by itself in the border.

DEUTZIA LEMOINEI is a hybrid between the last two species, *parviflora* being the mother plant, and in habit it is intermediate between its parents. It is quite new to us, but its reputation is so good and its parentage so assuring that we regard it with great expectation. The raiser, E. Lemoine of Nancy, France, writing in *The Gardeners' Chronicle*, tells us that it "has not the corymb of *D. parviflora* nor the long truss of *D. gracilis*. It bears a ramified panicle, erect, sometimes hemispherical, sometimes cone-shaped with a broad base. Each cluster includes from fifteen to twenty-five large and well opened flowers, measuring three-fourths of an inch to an inch, in appearance different from those of other deutzias. The petals are broad, oval, with undulated edges of the purest white, and quite concealing the lobes of the calyx; the stamens are reddish yellow with a tri lobed thread. The flowers of *D. Lemoinei* are spread quite out, while those of *D. gracilis* have pointed petals and are generally but a little open; they touch in the inflorescence so as completely to hide the peduncles and pedicels; this is not so with *D. parviflora* or *D. gracilis*. *Deutzia Lemoinei* is an excellent shrub for forcing. * * * Grown side by side with *D. gracilis* they surpass that plant in beauty. Thus we believe that this new shrub will soon be widely multiplied for forcing, and will gradually supplant *D. gracilis*. In the open ground it needs no special care so it may have a place in all gardens, however small. Quite as floriferous as is *D. gracilis*, it has the advantages of being more hardy and sturdy, of growing much more quickly and of flourishing in any soil." The accompanying illustration is from a plant in Europe that was lifted from the open ground in late fall, and grown in the greenhouse in winter.

DEUTZIA CRENATA is a very much stronger growing shrub than any of the deutzias mentioned above and a later blooner; it is very common in our gardens, finding a place with the philadelphus or mock-orange, or "syringa," as it is often called in our shrubberies. The double flowered forms, both the pure white and purple tinged, are more esteemed than the single ones, and their flowers last longer without dropping. But the best double white one of all is Pride of Rochester; it has larger blossoms, longer panicles and more of them than the others. Although the true *Deutzia scabra* is a little shrub, most beautiful when in bloom, it is unfortunately barely hardy here.

J. R. TRUMPY.

Kissena, L. I., Jan. 6. '96.

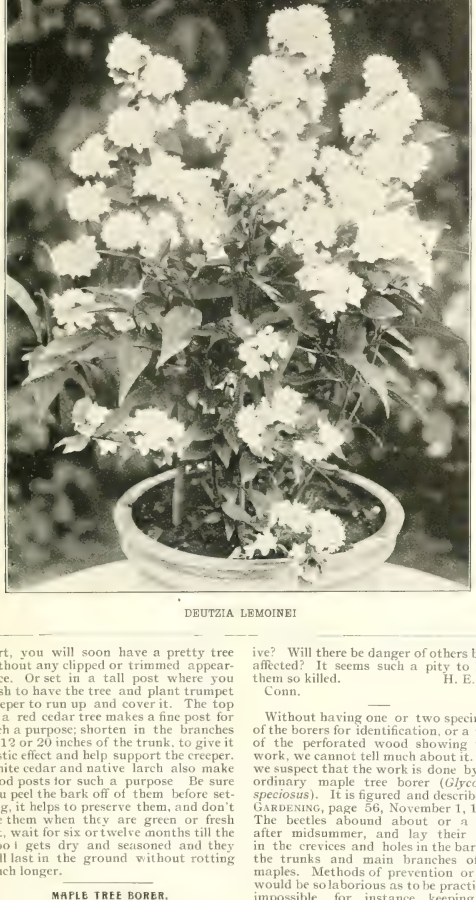
WANTED—A COLUMNAR TREE.

I have one special place where a pyramidal tree would look well. It must be a rather narrow form on account of lack of space near the ground. I have Bolle's poplar and the cercidiphyllum and don't want the ordinary Lombardy poplar. About the only other hardy tree I know of is the pyramidal white birch. I've never seen one, so can't tell if it is a handsome tree. The weeping birch has a tendency to die back at the top all along the Lake Shore. There is not a good specimen of it between Chicago and Milwaukee. What can you tell me about the pyramidal birch or can you suggest any other? Don't tantalize me by suggesting *Chimonanthus fragrans grandiflora*. I still remember the sniff you gave me of it several years ago. READER.

Chicago.

The fastigiate or pyramidal form of the European white birch is a very beautiful tree, and where it thrives it holds its branches from the ground up. A mild spell of weather in February or March succeeded by a sudden piercing frosty snap, just such conditions as you often have about Chicago, often plays havoc with the European birches. The trees themselves are perfectly hardy so far as steady hard cold is concerned, but the sudden changes of late winter are detrimental to them anywhere, and to any variety of them. If the common English oak were hardy with you we would recommend the fastigiate form of it, which makes a fine columnar tree of its kind, is distinct and marked. But the Ginkgo is hardy with you. Now there is quite a narrow bodied form of it that holds this shape through life, and which we think would suit your purpose. There is a big tree of it near Staatsburgh, N. Y. Ask some of our nurserymen if they can supply you with this distinctly fastigiate form. The cercidiphyllum, although generally of pyramidal contour, does not retain a columnar form, its slender branches move outward, giving it an ordinarily pyramidal shape, often broadly so, and sometimes the trees are as round headed as an oak. This may be against popular belief, but the biggest tree of it at Dosoris is so shaped.

But if you cannot get a tree to suit you you can make one. You can plant a Ginnala maple and grow it to a straight stem and prune it so as to cause it to branch from the base up; and with a little common sense pruning each year, keeping the top reduced enough to fill up the lower



DEUTZIA LEMOINEI

part, you will soon have a pretty tree without any clipped or trimmed appearance. Or set in a tall post where you wish to have the tree and plant trumpet creeper to run up and cover it. The top of a red cedar tree makes a fine post for such a purpose; shorten in the branches to 12 or 20 inches of the trunk, to give it rustic effect and help support the creeper. White cedar and native larch also make good posts for such a purpose Be sure you peel the bark off of them before setting, it helps to preserve them, and don't use them when they are green or fresh cut, wait for six or twelve months till the wood gets dry and seasoned and they will last in the ground without rotting much longer.

MAPLE TREE BORER.

For the past two summers we have noticed a maple tree on our place not doing well, the foliage turning yellow and dropping during midsummer. Last Monday night (December 30) we had a severe gale, and the tree was blown over, not broken, but torn up by the roots, although a tree of good size, more than a foot in thickness. Examination shows that the roots are somewhat decayed, and that it was killed by borers. Another tree (maple) lost a large branch last winter from the effects of an ice storm, and the past summer has not seemed to grow, the foliage falling earlier than it should. We fear borers are killing that also. Is there any help for it? If not, is there any preventive? Will there be danger of others being affected? It seems such a pity to have them so killed. H. E. L.

Conn.

Without having one or two specimens of the borers for identification, or a piece of the perforated wood showing their work, we cannot tell much about it. But we suspect that the work is done by the ordinary maple tree borer (*Glycobius speciosus*). It is figured and described in GARDENING, page 56, November 1, 1894. The beetles abound about or a little after midsummer, and lay their eggs in the crevices and holes in the bark on the trunks and main branches of the maples. Methods of prevention or cure would be so laborious as to be practically impossible, for instance keeping the trunks and stout branches scraped smooth, especially in the crotches, so as to give the beetles no good place to lay their eggs in; sponging or painting these parts over once or twice in August with kerosene and whale oil soap, say one gallon of kerosene, two gallons of water and two pounds of soft soap, mixed together. This is to kill the eggs.

BERBERIS THUNBERGII.

Who has not a hedge of *Berberis Thunbergii*, or at least a group of them? He that answers "not I" has yet some happiness in store. How many its virtues, how few its faults! If faults there be, it has kept them a secret from me, for I can discover none. It greets you in early spring with a most delicate leafage, being among the first shrubs to don its summer garb, and then it hangs a row of creamy-white bells along the under side of its arching branches as if to ring in merry tones the promise of its autumnal glory. In spite of drouth and insect pests it keeps its garments fresh and bright all summer long and has a habit of sending its branches at such peculiar, yet graceful angles as to indicate its nativity and say to you "am I not Japanese in effect." All through the Indian summer it joins the masquerade of coloring that glorifies the dying foliage of the woods and decks itself in coral berries that almost glisten in the sun, and they hang as vivid pendants all thr ugh the winter months. The reds and browns and sunset tones its leaves assume are fitting foils to its brilliant berries, and blind is he to Nature's charms who can look on them without intense admiration of this modest little shrub Never rank growing, never very large, in sun and heat and winter's cold it thrives and blooms and does its share in the adornment of our grounds. For a low hedge or an under shrub, or for low grouping it stands without a peer.

Highland Park, Ill. W C EGAN.

The Flower Garden.

QUESTIONS ABOUT HARDY PLANTS.

C. M. C., Washington, D. C., asks the following questions:

1. "HAS GENTIANA ACAULIS much merit, and can it be made to bloom the first year? Are there any other good gentians?"

Ans. Gentiana acaulis is a hardy herbaceous perennial, a low growing, tufted or mat-like plant from the Alps and Pyrenees, and withal a most beautiful little blue flower. In the northern states, on rockwork or as an edging in the mixed flower garden, in moderately moist soil it may be grown in fair condition, but we have grave doubts of its thriving at Washington. *G. verna*, another high mountain gem, will be worse still. And don't bother with our native fringed gentian; although it is a charming little plant in its wild state, few people can grow it in their gardens. Try the strong growing kinds like the blue and white forms of the closed gentian (*G. Andrewsii*), *G. asclepiadea*, *G. cruciata*, *G. calycosa* and *G. Saponaria*. While all of these are good border plants, and will probably do well with you if not in a too sunny or dry place, they are not as beautiful or interesting as the little alpine kinds that, most likely, won't grow with you.

2. CAMPANULAS.—"Are there any campanulas among the perennials that are striking and effective? Ditto among the annuals?"

Ans. There are lots of fine perennial campanulas, for instance the white and blue, single and double *persicæfolia* also *nobilis*, *macrantha*, *celtidifolia* and *glomerata*, and others of tall growth, but the first named only is a refined plant. *Carpathica* grows in bunches; and many little tufted kinds, such as *muralis*, *pulla*, *isophylla*, *garganica*, *turbinata* and *cæspitosa*, which, if we give them proper conditions, as a north or east facing rock garden, plenty moisture in summer and shade from bright sunshine will grow with us well enough. Then there are *Barrelieri* and *fragilis*, which make nice spreading tufts in the rock garden or are fitted for planting in baskets or bracket pots. The platycodons are also campanulas,

and they—blue and white, single and double, dwarf (*Mariesi*) and tall (*grandiflorum*) are among the best of our summer perennials. In the way of biennials we have Canterbury bells and *C. pyramidalis*, both hardy with you. Among the best of the annuals are *macrostyla*, large flowers and distinct, and the common *attica* and *Loveyi*.

3. "THE SWAN RIVER DAISY (*Brachycome iberidifolia*).—In my three bound volumes of GARDENING I do not find anything on this plant. What are its merits and demerits?"

Ans. It is a very pretty little annual with white, bluish and purplish daisy-like flowers which are borne in the greatest profusion. It is one of the commonest and cheapest of annuals and of the easiest cultivation, but somehow or other, like saponaria, Virginia stocks, collinsias and some other old fashioned little plants, our people don't seem to get up any enthusiasm for it. It doesn't last long in bloom.

4. "SALPIGLOSSIS.—What is your opinion of these?"

Ans. We grow them extensively for cut flowers in summer. They are annuals, and easy enough to grow after they get started but sometimes hard to start, of upright habit and attaining 2 to 3 feet in height. Their flowers are large, prettily colored, a good deal variegated, and rather odd to those unfamiliar with them; the plants last a long time in bloom, and the blossoms keep fairly well when cut.

5. DAHLIAS.—"I carefully studied your list of the twelve best dahlias, as furnished by a distinguished amateur, and then looked through a drawer full of catalogues. In the whole lot I found but one of the dahlias. What can be done under such circumstances to secure the list complete?"

Ans Send us the names you wish to find, and we will try to help you. The dahlia question is a vexed one. You know dahlias don't bloom with us in summer and fall as they used to; it is nothing to see a hundred plants in one garden in vigorous growth, but without a score of perfect flowers on them; and perhaps in a cottage garden a little way off there may be a dozen plants in fine blossom. For want of a better name and technical knowledge of this disease we call it "Dahlia mite," and so far we have been unable to effectually destroy or prevent it.

6. CANTERBURY BELLS.—"I had this year a fine collection of these. The best plants were marked, and the seed carefully planted as soon as the pods were ripe, in a cold frame, over which there was a screen. Result, not a plant. What was the matter? My own idea is that the man who did the planting planted too deep."

Ans. Of course that was in midsummer—July or the first of August, the easiest time of the year to kill seed in a seed bed. The general cause of failure is overdryness of the soil underneath as well as at the surface and over-exposure of the surface soil not alone to sunshine, but to drying winds. Just before the seed was ripe had you cleaned the ground about the plants and raked it smooth, then allowed the seed pods to burst and scatter the seed at will, a few days after the next good rain that ground would probably have been a living carpet of little seedlings. Then you could have picked up what you wanted, pricked them off into a prepared bed in a frame, and in a few weeks, when they had made nice little plants set them out of doors where you wanted to have them.

7. "OUGHT AZALEA MOLLIS, of which I purchased 12 specimens in pots, be protected this first winter? And how?"

Ans. Azalea mollis is perfectly hardy with you, but if your plants are still in pots don't disturb them till early spring, keeping them in the cellar, sunk in a cold frame or in a pit most anywhere where they will be quite cool, and at the same time away from frost. Plants in pots, no matter how hardy they are, should not have the earth in the pots frozen. Don't let the soil in the pots get dry, at any time, and discourage any inclination the plants may show to grow; it will be better for themselves if they are quite dormant when they are set out, than if bursting into leaf.

8. "THE 'MIDGET' ROSE'.—What is your opinion of this rose? It originated in France, and was advertised by some leading dealers as producing flowers in a few weeks from seed?"

Ans. As soon as it was "sent out" we grew and tested it. The seeds germinated readily, and, really, the little plants came into bloom when they were only a few months old. But aside from being an oddity they are of no use as roses.

THE PÆONY.

Nothing in its season so much attracts the average passerby as a well grown mass of pæonies, and nothing is easier to grow, and when once started takes better care of itself. On this account very rarely is the proper effort made to have a fine display of pæonies and frequently the barest necessaries of plant life are hardly furnished them. Perhaps you have seen a lawn lit up by pæonies to excite your emulation and want to have some yourself. Let me advise you:

Prepare in advance. Consider what varieties you want and get ready the place to put them in. Pæonies love rich soil and moisture. They will endure much neglect and even considerable shade, but if they are in a good bed they will show their gratitude. They will flourish in rich bottom land, but are at home in the heaviest clay or lightest sand. Dig out a deep bed for them as soon as you can to allow the ingredients time to decay and settle. If you have well rotted manure you can use two-thirds of that with one-third of good top soil, but if the manure did not rot under shelter and in a large mass I should use fresh manure. The ordinary well rotted manure from a farm is leached out, it is a snare and delusion, and may destroy your hopes. If you use fresh manure incorporate it well with the soil and put on the bed the first year some rank growing annuals or cannas or anything to hide its unsightliness and make it high, as it will settle. Don't put all the manure in the bottom and the soil on top, as some of our friends are wont to make their asparagus beds.

Now we will assume your bed is made and ready to plant. If you get plants from the near neighborhood or are transplanting some that you have neglected and that need a change the best time and when you can give all needful care is perhaps a month after the flowering season. Divide your clumps, press the soil firmly about the roots, shade the tops slightly and give a thorough watering which may have to be repeated once or twice. If the plants take good hold you will have a crop of flowers next season. The next best time is in fall as soon as the foliage decays. Do not wait until spring if you can avoid it, and never undertake to import pæony plants in spring. You would gain time by waiting until fall.

The garden varieties are mostly descendants of *Pæonia albiflora*, a species from China. Bright yellows are still lacking and they may soon be added by crossing some of the older sorts with a new variety, *Pæonia lutea*, introduced only within three years by seed sent from Yunnan, a hitherto unexplored region of China. There are several European species also, and the double form of one is the well known double scarlet earliest flowering pæony. It is *P. officinalis* and no kind is better for a lawn ornament. It should be one in any collection of even three varieties. It precedes all the Chinese varieties in bloom by two weeks. There are also lighter colored varieties of it, but they are not so commonly grown I have a large collection of pæonies and the following varieties are among the most noticeable in it. It is not necessary for ordinary wants to grow so large a collection, but as it may be hard to find some of the varieties in the stock of the nurseryman who offers some of the others you have an opportunity of substituting. For lawn decoration the darker colors are much preferable. For cutting, and in doing this never wait for the flower to be fully expanded you will find the light colors most desirable. Some of these varieties are quite new and decided improvements.

WHITE.

DUC DE WELLINGTON.—White, center creamy, fine bold flower and bold grower.

SOLFATERRE.—Pure white, yellowish center, golden stamens, rose scented, very fine.

COURONNE D'OR.—Large full white flower, bold and showy, with a beautiful mass of golden stamens. There is no finer white pæony. Scent disagreeable.

LA TULIPE.—Very fine cup-shaped bud, but not full enough nor firm enough when open, white with carmine tips

MATHILDE DE ROSENECK.—Flesh white, very fine form.

MARIE.—White, lightly tinted rose, fine form and late.

LIGHT SHADES

ALEXANDRINA.—An old variety, fine lively rose color and shape of Magna Charta rose.

M. PAILLET.—Very fine flesh pink, fair form.

BEAUTE DE VILLECANTE.—Tender rose, but not perfect in form. This variety attracted attention at the World's Fair. Not one of my favorites

MME. CALLOT.—Light rosy guard petals, center flesh white, very fair flower.

ZOE CALLOT.—Very fine, bold, light rose flower with carmine pistils. It is pæony formed, but a pleasing color.

MME. JULES CALLOT.—Extra fine large rose flowers, shape perfect and color good.

MARIE JACQUIN.—An open tulip shaped flower, good form, attractive, whitish pink with yellow stamens.

VIRGINIE.—There is also a salmon colored variety of this name—good light rose, bold flower and strong grower.

J. B. RENDATLER.—Good full flower of lively rose color.

TRIOMPHE DE L'EXPOSITION DE LILLE.—Large pink flowers, petals edged whitish and slightly washed with carmine, large fine flower.

MME. LOISE (Mere).—Blush pink, large and fragrant.

LADY ANNA.—Lively rose, fine form.

DARK SHADES.

L'ECLATANTE.—Carmine, dark rose center, beautiful.

JUSSIEU.—Very dark purple.

COMTE DE NIEPPERG.—Not over full but a fine, clear, showy currant red.

CHARLES BINDER.—Fine full flower of a striking red color; good garden variety. Color described in French as "rouge violace."

BED OF HERBACEOUS PÆONIES ON THE LAWN AT THE MOUNT HOPE NURSERIES

M. P. Risbourg.—A very showy, lively dark rose.

L'Avenir.—Fine glowing dark rose, guard petals cup-shaped, center pæony formed of lively salmon red. Attractive.

Auguste Lemonier.—Not very full but a very brilliant showy scarlet, about the same shade as Gen. Jacqueminot rose.

Chas. Verdier.—Another flower with the same brilliant shade Very fine form.

M. du Ribert.—Very fine, violet purple.

M. Gibrain.—Good garden variety, well shaped red or dark pink flower.

Etienne Mechin.—Brilliant effective cherry red. One of the very showiest of all.

In conclusion would say that I did not have the assistance of F. Schuyler Mathews in describing the colors of these flowers. To compare the flowers with their descriptions in catalogues, especially the French, I saw would lead to hepeless bewilderment, and so I bethought me of my good wife, whose color sense I heretofore placed the greatest reliance in. But the various blendings of pinks, rose, carmine, scarlet, etc. were so endless that she would not even attempt a description. So I had to rely on myself. But the newer varieties are so beautiful that descriptions do not describe. You must see for yourself. Chas. L. Mann.

Milwaukee.

Let us urge our readers to plant some pæonies and as Mr. Mann describes, give them good, deep, rich ground to grow in, and plenty of moisture. Starvation and a lack of moisture in summer are often the cause of the non-blooming of pæonies the following year. If you look back into Gardening, page 5, September 15, 1892, you will there see a fine clump of the old fashioned double early flowered pæonia Mr. Mann says should be one of three if limited to this number. The Chinese sorts behind it are far behind, not a bud is near ready to open. And they are so hardy and live so long that they appeal to us all. For our illustration we are indebted to the courtesy of Messrs. Ellwanger & Barry, Rochester, N. Y., who have a capital collection of these fine flowers.

A GOOD HARDY VINE (*Dolichos Japonicus*)

I send you under another cover the leaves of a hardy vine which has demonstrated its great usefulness and beauty on a neighbor's porch. It leafs early, is a very vigorous—remarkably so—and very clean, but flowerless. The owners do not know its name and neither do the professors in the botanical section of the agricultural department. They said it evidently belonged to the bean family but wanted to see its fruit. I have hunted twice for seed pods in August and again in October. I could find none and the owner said it had none. The bark is grey. The central leaf projects ½ inch in front of the other two. What is its name, as I want some plants? C. M. C.

Washington, D. C.

It is *Dolichos Japonicus* or as the botanists now call it *Pueraria Thunbergiana*. It is the most vigorous-growing vine at Dosoris, often throwing out shoots 30 or 40 feet long in one season. For some years after we planted it it died down to the ground every winter, but now the old wood lives over for ten or twenty feet; at Washington even the old wood is hardy. It is a coarse-looking vine but it keeps its leaves well all summer. It belongs to the bean family and has purplish flowers, but they are not very attractive. The plants seldom bloom when young.

Campanula pyramidalis.—A reader asks: "Do you treat it as a biennial or not? Is it hardy with you?" *Ans.* As a biennial. It may be kept as a perennial, but with some difficulty. Besides it is so easily gotten up from seed and it makes such fine big plants as a biennial, better than ever after, that there is no advantage in keeping it longer than the second year. Some plants ordinarily called biennials if sown early bloom the first year, but this is not one of them. Under a mulching of sedge or leaves as we keep hollyhocks and foxgloves it is hardy with us, but altogether we have better success with it when we plant it in a cold frame over winter as we do Canterbury bells, and plant it out again in early spring. It doesn't blossom till after midsummer, sometimes not till late in the season. It is an excellent plant well worth growing, and the compact variety introduced a year or more ago is an additional desideratum.

GARDENING

WILLIAM FALCONER, Editor.

PUBLISHED THE 1ST AND 15TH OF EACH MONTH

— BY —

THE GARDENING COMPANY,

Monon Building, CHICAGO.

Subscription Price, $2.00 a Year—24 Numbers. Advertising rates on application.

Entered at Chicago postoffice as second-class matter.

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All communications relating to subscriptions, advertisements and other business matters should be addressed to The Gardening Company, Monon Building, Chicago, and all matters pertaining to the editorial department of the paper should be addressed to the Editor of GARDENING, Glen Cove, N. Y.

GARDENING is gotten up for its readers and in their interest, and it behooves you, one and all, to make it interesting. If it does not exactly suit your case, please write and tell us what you want. It is our desire to help you.

ASK ANY QUESTIONS you please about plants, flowers, fruits, vegetables or other practical gardening matters. We will take pleasure in answering them.

SEND US NOTES of your experience in gardening in any line; tell us of your successes that others may be enlightened and encouraged, and of your failures, perhaps we can help you.

SEND US PHOTOGRAPHS OR SKETCHES of your flowers, gardens, greenhouses, fruits, vegetables, or horticultural appliances that we may have them engraved for GARDENING.

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COLD WEATHER HURTS THE SALE OF FLOWERS.—When in New York a bitterly cold day last week, we ask a large flower commission agent how was business, and he replied: "We have lots of stock and it is fine too, but this cold weather is hard on us and we cannot get rid of the flowers as fast as we would like to, you see the street peddlers and street stands cannot expose flowers for sale in weather like this, and that makes a big difference in our business." How so? we asked. "Well, we get rid of left over, too old, and poor stock in that way, and if the peddlers cannot expose it for sale they won't buy it, and that's a loss all round. But as regards good grade flowers we can sell all we get."

THE SMALLEST APPLE that we know of is the fruit of *Pyrus Parkmannii*.

THE SUCCESS of your periodical has been marvelous, and is fully justified by its value. DR. J. W. B.

New York.

CUPID SWEET PEA—A MISTAKE.—In the last issue of GARDENING, page 119, the picture of the sweet pea there shown is that of Blanche Burpee and *not* of Cupid. It was a compositor's mistake. W. Atlee Burpee of Philadelphia, at our request, sent electros of both varieties direct to the Chicago office, but a careless compositor, in making up the page, used the wrong picture. A mistake like this is exceedingly mortifying to us, and we apologize to our readers for it. Please erase the name Cupid from under the picture in your copy, and write that of Blanche Burpee.

THE "WILLOW" by the rivers of Babylon was presumably not * * * a willow but what we now know as *Populus Euphratica*. *Salix Babylonica* is of Chinese or Japanese origin and if the weeping willow exists now in the valley of the Euphrates, it probably has been introduced, so says the *Gardeners' Chronicle*.

THE MADRESFIELD COURT GRAPE, Mr. John Gardiner tells us, is undoubtedly the finest Muscat grape in existence and it can be grown in tubs very satisfactorily where the watering is under full control. Over-abundance of water causes this grape to crack when taking the second swelling. It will ripen at the same time as Black Hamburgh.

GINSENG.—C. R. S., Williamsport Pa., asks for some information as regards the cultivation of ginseng root, also from whom he can obtain plants. *Ans.* Write to the Agricultural Department, Washington, for a pamphlet recently published by it on this subject. Send to Harlan P. Kelsey, Highlands Nursery, Kawana, Mitchell Co., N C., for the plants. He has 40,000 of them for sale.

THE CLIMBING METEOR ROSE.—One of our readers asks about this variety. Although we have seen thousands of little plants of it gotten up for sale we have not seen a large climbing specimen, so meeting Mr. F. R. Pierson (the largest growel of Meteor roses for cut flowers around New York) the other day we asked him about it. He informed us that no doubt it was a true Meteor, and a climber too in this way—that it would produce much longer shoots than the typical plant, but it wouldn't be a climber after the fashion of a prairie rose.

THE HYBRID STREPTOCARPUS.—What beautiful little plants they are with their white, lilac, purple, violet, rose, and red flowers, and they seem to keep in bloom most all the time. Their best purpose is as pot plants for greenhouse decoration, or planted out along with ferns, begonias, peperomia, and other little plants in rockwork or rustic work in greenhouses or on mossed walls, and after they are full grown and in bloom they make good window plants. Shade them from bright sunshine. Raise them from seed, and now is a good time to sow it. The seeds are very small, and take three weeks to germinate, but they have much vitality and the seedlings are not apt to damp off like those of begonias or gloxinias. Two parts fibrous loam, one of baked leaf soil, and one of sharp sand make a good soil for them.

CHRISTMAS ROSES are not roses at all, they are hellebores, and belong to the same family of plants as do clematis, anemone, columbines and larkspur. Their botanical name is *Helleborus niger* and they blossom in early winter, at a time when they are very welcome indeed. We have a nice lot of them in bloom now—large wide-open fine white blossoms, excellent for cut flowers. The plants are hardy, but as the blossoms open out of doors are so damaged and poor we protect ours with a cold frame and sash in winter and cover it over with sedge to keep severe cold out. The plants are growing on the east side of a building and sheltered from the north; they are fully exposed all summer, and as they are planted out permanently they require no attention except in the matter of winter covering, and that is because we want the flowers. Anyone can grow these Christmas roses just as well as we can.

FILLING THE ICE HOUSE.—First, clean out the ice house; have an even floor of wood boards, strips or even shavings, etc., in the bottom and the drainage perfect. Have the ice pond plowed both ways so that the cakes may be even square when cut. Be particular in packing the ice to have the cakes up tight together in close even floors and mash up the broken cakes to fill up whatever chinks there may be between the cakes. When the house is full, in hard frosty weather leave it open at night, but be particular to shut it up to exclude rain. Before mild weather sets in cover the ice with a good layer of sawdust or shavings. Now the most important point to observe in keeping ice in summer is ventilation. Don't get possessed of the idea that in an air-tight house the ice will keep better than in an open one, for such is contrary to the facts. Keep the ice well covered and dry and abundantly ventilated at the top. Read what Mrs Chrisman says about this (from long, actual experience) in GARDENING, page 348, August 1, 1895.

KEROSENE STOVES FOR HEATING SMALL GREENHOUSES.—A L. W., New York, writes: "In the current number of GARDENING you refer to kerosene stoves as dangerous. As I have used one for seven years in my plant room I would ask whether you regard them dangerous from explosion or being noxious. I have grown twenty varieties of plants and flowers without trouble. I may add that extreme care is taken in filling and lighting as required by the insurance company." We are glad to know this. The danger lies in careless management and consequent noxious gases. In fact we have a little side greenhouse at Dosoris heated from an open door into the potting shed, except in quite cold weather, when we put a couple of large kerosene lamps into it, turning them all night and in the dull part of the day, and there is no harm to the plants from them. But let these lamps flare up too high and smoke, and harm will ensue, and if a drop of water touches the glass it breaks and the flame smokes, and if not detected soon the plants suffer.

THE SUMMER WATER LILY GARDEN.—Prepare for it now, not only the lilies themselves, but the plants you wish to group around your pond to give it a luxuriant and tropical effect. Mr. Peter Bisset, the head gardener at Mr. Gardner Hubbard's beautiful place, Twin Oaks, (see GARDENING, front page, April 15, 1895), Washington, under date of the 9th inst., writes us as follows about what he used for this purpose: "For planting around the edge of the pond we used *Ricinus Zanzibarensis* a good deal and found it admirable, it grew to the height of 15 feet, also *Musa ensete*, *Caladium arboreum*, *Aralia papyrifera*, *Bambusa aurea*, *Solanum Warscewiczii* and *C. giganteum*, *Wigandia Caracasana*, *Canna Ehemannii* and various of the fine flowered sorts, *Acalypha* in variety, *Cyperus alternifolius* with its feet in the water;

Eulalia gracillima, *Erianthus Ravennæ* and several others. The effect was fine, tropical and in good keeping with the surroundings." The musa, solanums, wigandia and cyperus can be raised from seed and the sooner it is sown in the greenhouse the better; the ricinus also from seed, but March is soon enough to sow it

POISONED BY CHRYSANTHEMUMS—ARE THEY GUILTY?—The Rev. J. C. Berrien of Steubenville, Ohio, writes: "I would like to ask if in your experience, or if in the experience of the readers of GARDENING you have found the foliage of chrysanthemums to be poisonous to human flesh? I have noticed for two years past about the time I was tying and staking my 'mums an irritation upon my hands and face, accompanied with itching, sometimes very annoying. After the plants had been cut down and I ceased handling them the symptoms disappeared. Would such results follow handling dried and mouldy leaves swept from the street, particularly poplar and maple? I have piles of these that I worked in considerably about the same time. I would like to put the blame on something else and not be obliged 'to keep my hands off' my beloved chrysanthemums." We have never seen a case of poisoning by chrysanthemums nor have we before now heard of one. Has any other of our readers? We don't think the trouble was in the maple or poplar leaves, but we do know that the hairs upon the maple keys or seed coming in contact with the soft parts of the hands often cause such an irritation. Many people, however, are very much more susceptible to "poisoning" in this way than are others.

PYRETHRUM FLOWERS IN WINTER.

A year ago a neighbor florist called our attention to an experiment he was making in the way of growing pyrethrums for cut flowers in winter. The experiment proved a pronounced success, and now he has a large span-roofed greenhouse filled with double white pyrethrum plants, set out on the benches as one would carnations, and they look very promising. They were planted as a succession to late chrysanthemums in the greenhouse. These pyrethrums are perfectly hardy herbaceous perennials that bloom in May and early June out of doors; their flowers are full-double, pure white, of good size, very beautiful, and have good stiff stems, and altogether they look somewhat after the manner of a good double white China aster, only more refined. Like most hardy perennials the pyrethrums need a decided period of rest, and without it they cannot be made to grow and bloom satisfactorily in winter any more than we can lily of the valley. Our neighbor prepared for this last spring. He got ready a cold frame and lifting and dividing a lot of old plants, planted the divisions out in the bed of this frame, and encouraged them to start early and make a full strong growth before midsummer, and cut off the flower spikes as they appeared so as to enlarge and strengthen the plants. An early growth and complete exposure ripened them up pretty well in the fall, and the frosts we had before Christmas from which they had no protection seemingly have rested them enough, for since they have been planted in the greenhouse they have started very kindly into growth. When in bloom the flowers will be supported by the wire hoop supports used for carnations. Don't force the same plants every year, rather raise your stock for next year from outdoor plants that had not been forced at all this winter. They are very easily propagated by division in early spring.

POINSETTIAS

Are gorgeous winter-blooming plants, their heads of scarlet bracts being their attraction. As pot plants they are exceedingly showy in the conservatory, and for a short time in the house, but for cut flowers they are often very unsatisfactory, they wilt so soon after being cut. When we cut them we strip off all unnecessary foliage, then drop the sprays bodily into a tank of water, letting them float there for some hours, then lift them out and again cut a piece off of the ends of the stems and set them back in the water again for a while. After this they last plump and fresh fairly well for a night. Long leafy stems are sure to wilt the heads of bracts. After using them in the house for a night if the ends of the branches are shortened a little more and the sprays are again placed in a tank of water to float for a few hours they will plump up. Some people, after cutting their poinsettias dip the cut ends in hot water to stop the coagulation of the milk and thus save the pores from being choked and their means of absorbing water to keep themselves plump preserved. The "double" variety forms a fine succession to the single one. As soon as they are done blooming or the bracts are cut over we lay the plants on their sides on the floor under the bench of a greenhouse to stay there without any further care till April, when we shall bring them out, shake them out of their present pots, prune them hard back, repot them into pots, possibly smaller than the ones they were in before, and then set them up on the stage to the light, but not encourage growth much till the weather is warm enough—end of May—to allow us to plunge them out of doors for the summer.

SWEET PEAS.

SOME OF THE NEW SWEET PEAS well worth trying are as follows. The descriptions are from the published lists:

America—Intense and heavy cardinal striped variety.

Blanche Burpee—Probably the largest and finest white-flowered variety in cultivation.

Bride of Niagara—Pink and white, coming double.

Daybreak—White ground color with crimson-scarlet cloud on the back of upper petal.

Extra Early Blanche Ferry—Said to come into bloom some days ahead of Blanche Ferry.

Gray Friar—Large, finely formed grayish flower.

Juanita—White lined and flaked with light blue.

Katherine Tracy—Soft crimson blush.

Oddity—Pale carmine with bright rose edge.

Ramona—Creamy white, splashed and flaked with pink.

Meteor — Standard orange-salmon, wings delicate pink with slight purple veins.

BLANCHE FERRY is the most esteemed pink and white sweet pea in cultivation and it is the earliest of all. If the new extra early variety of it is as the raisers claim, ten days earlier, it will be a great boon not only for outdoor cultivation, but for growing in the greenhouse in winter. It isn't as tall a grower as the average run of sweet peas and its seeds are apt to be of the best quality and they are low priced. If restricted to one sort of sweet pea get Blanche Ferry. At the same time if one cannot afford to have more than one packet or ounce of sweet pea seed, by all means get mixed seed. Emily Henderson is simply a white flowered Blanche Ferry—the size, form, duration, earliness, etc.—everything except the color of the flowers, being identical, all of which are an extra good recommendation.

YELLOW FLOWERED SWEET PEAS.—We haven't any. The varieties described as yellow are of a creamy shade. Mrs. Eckford is the best of them, but its large, wide-open, splendid form is more the attraction than its creamy color.

DOUBLE-FLOWERED SWEET PEAS.—Notwithstanding all the persistent efforts of seed raisers to fix a double flower permanently they have not succeeded, so far as we have seen. This must be aggravating to them because when our common sweet peas are in the flush of their vigor and bloom we often find among them some "double" flowers. But Editor Seelye of Rochester, N. Y., assured us last summer that his folks had trained one down so fine that a large percentage of the blossoms could be depended on as coming double We must try it this year. We are also informed by other seed growers that they have established the strain enough to assure them of a moderate percentage of double blossoms.

The Fruit Garden.

GREENHOUSE GRAPES.

The foreign grapes such as Black Hamburgh and Muscat of Alexandria that we grow in our greenhouses are of no use for outdoor cultivation in the northern or middle states, at the same time, with very little trouble or cost amateurs with a make-shift greenhouse in summer can grow them in first rate order, and I say so from many years close practical experience in this line. [Growing grapes, peaches and other fruits in greenhouses, also mushrooms, and fancy vegetables in winter for market is Mr. Gardiner's business, and he is one of the largest and most successful growers of these things in the country.—ED.] I have tested over thirty varieties of these exotic grape vines thoroughly and find that if they are pruned in fall, and laid down and buried in winter, having four or five inches deep of loam over them they are perfectly hardy here out of doors. I have had Black Hamburgh and Muscat of Alexandria growing outside for twelve years and all the protection in winter they received was a covering of four or five inches of soil put on about the first of November. Many amateurs, gardeners, and florists use greenhouses in winter and spring but leave them empty in summer, now a market man like me cannot afford to do that, and that there is no need of you doing it. You can grow grapes in that greenhouse in summer just as well as not, and they won't interfere in anyway with your winter flowers. In this case the vines should be planted out of doors in the border and close by the front of the greenhouse, and the canes may be brought inside in spring and again taken outside in fall through apertures made for this purpose. This gives the vines a complete rest in winter, and enables us to use the greenhouse hot or cold just as we

wish and without any fear of exciting the vines, which might be the case were they laid down and boxed inside the house.

Many gardeners have also cold frame and hot bed sashes in use in winter and spring, but stored past idle in summer, now there is no need of this, with these sashes you can very easily set up a temporary greenhouse in summer over your grape vines and grow and ripen your fruit in perfection, and have your grapes cut, and the sash house taken apart in fall in time to let you have the sashes again for your winter frames. To make such a house, for the back wall set in posts to run 8 feet above ground, then use boards or shutters not in use in summer. Nail pieces of scantling 3 feet long to the top of the posts, to project forward like the rafters of the north hip of a greenhouse, on these nail light boards. The front should be of sash Six or seven feet is wide enough for the house. A few light posts along the front, then a board or plank next the ground, and a string of sash on their sides will give a 4 foot high front wall; from top of this and leaning to meet the boarded hip at the top sash should be placed in regular order This is practically a hip roofed little greenhouse. The sash should be fixed tightly, and provision made for ventilating at the top at the back of the house. The vines should be planted 3 feet apart and 18 inches inside from the front wall, and trained up on wires run through vertical screw eyes and nine inches from the glass. The vines should be planted permanently in rows out of doors for this purpose, and the temporary building merely set over them. The chief labor in connection with them in summer is training the vines and thinning the grapes, which is very simple and light work and can be done by children if need be.

Ventilation may be left open day and night after the first of June except during wet and dull sunless weather, when the ventilators should be shut. No ventilation or draught should be admitted from the front of the house, and the glass should be shaded thinly with whitewash.

For these exotic grape vines a clayey loam soil enriched with bone and rotted manure is best. A border six feet wide and two feet deep is sufficient, and it must be drained so that no stagnant water can lay on it at any season of the year. During the growing season the border should be mulched with a heavy dressing of rotted manure or litter to conserve moisture and keep the fine feeding roots near the surface of the ground where they can get additional feeding in occasional applications of liquid manure. This having the roots at the surface of the ground where they are under full control as to feeding is half the battle in raising fine grapes.

After the grapes are cut the sash house, can be taken down and removed, and by the first of November the vines may be pruned and laid down lengthwise in the row on top of the border, and four or five inches deep of loam placed on top of them, then all further trouble with them is over till next April, except to look out that this ridge of loam covering is not broken or washed down so as to expose any part of the canes to the light.

Another good way of growing catch-crops of grapes is in tubs. I use square box tubs 20 inches square at top 16 inches in bottom, and 12 inches deep. The tubs and vines are buried out of doors in winter, and unearthed and taken up before the middle of April. By bringing them into the greenhouse then and training the vines up to a wire or a stake they soon start into growth, and they bear good crops of grapes too.

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The Vegetable Garden.

THE BUNCH SWEET POTATO.

Let me impress upon your readers who grow sweet potatoes the importance of this new variety. After a season's trial of the Bunch yam I don't think any of you will plant any more of the running yellow yam. The latter is now and has been for many years *the* sweet potato of the south—the Ne Plus Ultra. But it is bound to go. Its viney, trailing, rooting along its branches as it runs habit, renders its cultivation troublesome, worse than that the spreading rooted vines soon become independent of the original root where the yams are forming, and absorb the nourment for their own interest and effort at a sub crop, and thus it is that we often find patches of potatoes producing a meagre crop although the tops look first-rate. If the average running sweet potato vines could be run on trellises this would be avoided and the whole mission of the the leaves and vines would be centered in swelling the yams at the original root But we will never take this trouble. So nature has now given us a good yam that doesn't run at all, but gathers itself into a compact leafly bunch that attends strictly to business at the main root. It is a chance sport, not a seedling, and its tubers are identical in kind with those of its parent, the running yellow yam. But for the reasons given above it produces finer tubers and a heavier crop of them It is as easily cultivated as cotton, Although not new by any means, it is still scarce. We are adopting it altogether.

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Be careful that no frost gets to any of the roots stored in boxes or bins in the cellar, or in pits out of doors. Don't spare the covering. Begin to save manure for hot-beds; you will need it next month. Sow lettuce seeds in flats in the greenhouse for plants for the earliest hotbeds. If you haven't sown some tomatoes sow some at once. Some extra early cabbage and cauliflower plants may also be sown now, and when the seedlings come up keep them in a moderately cool light place to get them well rooted and stocky; they should be half grown before it is time to plant them out permanently. Both rhubarb and asparagus force very easily from now on, and all the tr uble with them is to dig them and bring them inside where there is a moist warmth of about 60°. They don't need the light.

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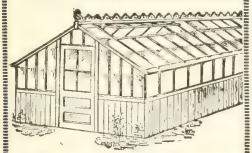

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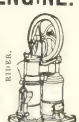

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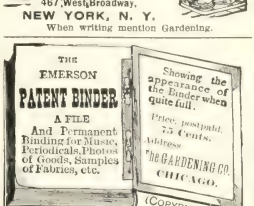

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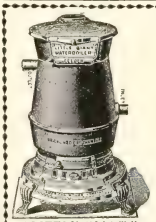

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GARDENING

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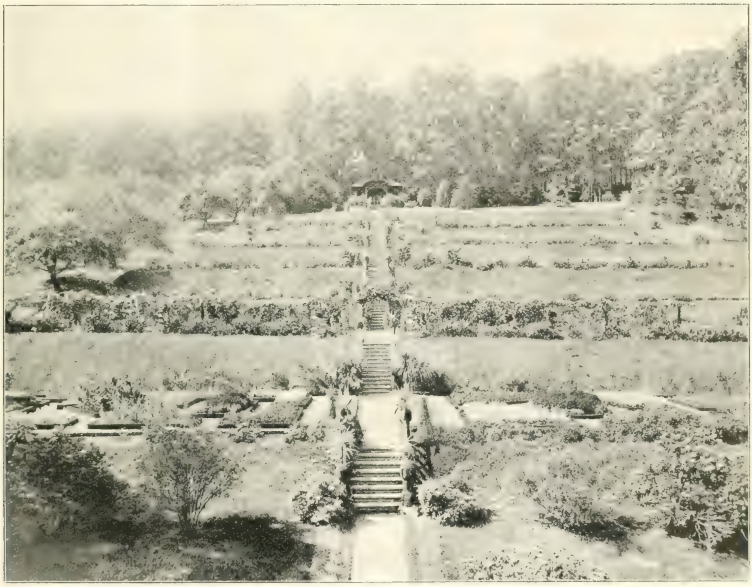


MR O D MUNN'S TERRACE GARDEN ORANGE N J

Landscape Gardening.

MR. O. D. MUNN'S TERRACE GARDEN.

This terrace garden is on a sunny slope of the Orange Mountains, near to Eagle Rock, which is 625 feet above sea level, and from it one gets a splendid view of New York City, the harbor, and surrounding country. The woods in the background are on the summit of the hill and consist of natural growth of oak, beech, hickory, etc., and form an excellent protection to the garden in front from the northwest winds.

The steepness of the hillside on which the terrace garden is made is ten inches in three feet. The soil is clayey loam with shallow clay subsoil resting on trap rock. There are eight terraces, with eight flights of steps, but the lowermost terrace is not shown in the picture. The average width of each terrace is 25 feet and length from end to end 200 feet. The height of the banks is about 10 feet each, and they have a slope of about 60°. The banks are faced with grass, the grass lapping over a little on the level both at top and bottom. To begin with they were sodded, the sods being staked in place till they took firm hold in the ground. There is very little trouble from washing and rutting by heavy rains because at the top of the garden is a ditch and drains running to right and left that carry away all the surface overflow from above. Notwithstanding the breadth of terraces the grass doesn't burn out in summer near as much as one might imagine, and this is largely due to the fact that it is not kept closely shaved by the mower; on account of the steepness of the grade scythes are employed instead of mowing machines, and the grass is not cut as often or as short as it would be were machines used. This always leaves a few inches of grass to protect the sod, and when it is combed down with the rake it looks very well. The same helps to protect it in winter.

The soil of the terraces is made soil, that is it is good loam carted on there. The walks are all macadamized and edged with box.

The geometrical flower garden seen in the picture is filled with ordinary summer bedding plants as geraniums, coleus, petunias, alyssum and the like. One of the lower terraces is filled with cannas, perennial sunflowers, and other large and miscellaneous hardy border plants. In the

front of the upper terraces is planted a large variety of hardy perennial, annual and bedding plants, that keep up a gay effect all summer long. Back of them small vegetables are grown, and all do very well.

The vines seen trained on one of the lower terraces are hardy grapes, they also appear over the arch. The varieties consist of Wilder, Niagara, Brighton, Pocklington, and Concord.

The box edgings are clipped in April. They are not protected in any way in winter, and they seem to be hardy enough, coming through unhurt. But wherever the box is a little under the shade of trees in summer it suffers more in winter than what is fully exposed.

The steps are made of the best Georgia pine, 4-inch plank 12 inches wide, which is the width of the tread; the riser is 7 inches. The railings to the steps of rustic design are of locust. The vases are turned out of solid locust, and are 4 feet high. There are thirty-four of them. As regards wind there is no trouble with them, they are so firmly fixed and the place is so well sheltered around with woods. They are filled with *Yucca aloifolia variegata* and agaves, which are taken into the cool greenhouse in winter.

At the corners of the lower steps, on each side, is a clump of tree peonies. At the base of the third flight of steps (second as seen in picture) are clumps of the zebra-striped eulalia grass. On either side are also pillars of cypress vine raised from seed sown in spring; it is in full beauty from June till frost.

Among the prominent shrubs shown in the illustration are purple leaved barberry to the left; and a group of deciduous magnolias to the right. Rhododendrons thrive nicely here, notably the hybrids of *Catawbiense*, and *R. maximum*, grows wild in abundance in the ravines in the woods.

The summer house at the top is made of rustic cedar, roofed with slate, and floored with Georgia pine. The flooring is very lasting. The rustic work is painted frequently with linseed oil and burned umber, which gives it an appearance of bog oak. Around the summer house are planted golden oak, purple and fern leaved beech, *Retinospora filifera* and *Azalea amœna*. The azalea gets no protection in winter and it usually lives very well, but last winter it got burned a little.

There are two hydrants at each flight of steps, one on either side, thus providing ample facilities for artificial watering.

The apple orchard to the left contains such varieties as Baldwin, Northern Spy, Rhode Island Greening, Red Astrachan, Early Harvest and Golden Sweet, and they all do very well. But on account of the steepness of the land it has got to have a surface dressing of manure every year.

A PLEASING COMBINATION.

In a bed composed of shrubs and herbaceous perennials, the shrubs are planted mainly at the back, if the bed be a one sided one or in the center if it is to be viewed on both sides, and in each case the shrubs now and then come out to the extreme front. Between these promontories of shrubs are left ample sized bays for perennials or for low growing shrubs. This method ensures irregularity of outline so essential, and cozy nooks for flowers. Many perennials that are handsome in flower, are apt to be somewhat bare of leaves at the bottom, or they may have too stiff an aspect to constitute desirable border plants, thus making it necessary for us to use a more graceful species as an edging. Where tall growing plants are used at the back in the bed I have found that *Dicentra eximia*, the Allegheny Mountain bleeding heart and *Iris graminea*, the grass-leaved iris, are admirable for that purpose. I desire now to speak of the latter as we have it in a very pleasing combination. Two plants of the double-flowered *Spiræa prunifolia* planted seven feet apart were used at the extreme outer edge of a large bed; about eight feet back and midway between the spiræas is a standard shaped purple leaved plum (*Prunus Pissardii*), in front of the prunus is a cut leaved sumach and two more are in front of it, the latter being planted about two and a half feet from the outer edge of the bed. The spiræas and the prunus form the three points of a triangle and the sumachs fill in between. The *Iris graminea* is used as an edging. The foliage effect is fine all through the season. Young plants of the cut leaved sumach are used, and their crooked naked stems are entirely hidden by the iris. We have on each side the handsome dark green and glossy leaves of the spiræa, the front pendulous band of the dark shining grass-like leaves of the iris and the handsome fern-like foliage of the sumach leading back to the purple-hued leaves of the prunus whose standard stem is hidden by the sumach. This is a permanent all summer aspect. The prunus has its flowers and the iris its share, and delicate and handsome they are, blooming in May, but these are comparatively fleeting. More attention should be paid to foliage effect in shrubbery belts, than has heretofore been the custom. The foliage, like the poor, are always with us, but the visit of the flowers of shrubs is of short duration. [We are surprised to know that *Iris graminea* behaves so well, and is so hardy in northern Illinois. *Iris Sibirica* and its varieties, especially *sanguinea* are the ones mostly used for such purposes, they are so hardy, so easy to grow, and last so well in foliage all summer.—Ed.]

Highland Park, Ill. W. C. Egan.

Trees and Shrubs.

ROSA RUGOSA—WEIGELIAS—ANDROMEDAS.

H. S. T., Elsah, Ill., asks:

"Rosa rugosa, should it be pruned when it has a tendency to grow ragged at the bottom?"

Ans. Yes, prune it in hard, and do this anytime between now and the first of April. And if you don't like the look of the bare stumps in the bed, cut them right down to the ground, sprouts enough will come from the roots to replace the top you may cut over.

"Weigelias—Should they be pruned, and if so when?"

Ans. If the weigelias have grown to be long, sprawling, arching shrubs out of all shape, they will probably bloom in great profusion, and whatever pruning is done now will be at the expense of that florifierousness, as all the pruned out wood is apt to be flowering wood. We generally wait till the plants are done blooming before we prune them, and then we cut them only enough to keep them shapely and sufficiently thin to let them ripen their young wood well and convert it into sound flowering branches. If your bushes are over grown and unshapely and you wish to get them into handsome form again, cut them hard back and do it now; don't cut them clean over as you would a hedge or pollard tree, but cut the main naked branches down hard and let the spray remain for the time being untouched. This will cause them to send up strong sap-shoots, and these must be tipped a little in early summer, and thinned. Bear in mind that the more you cut in your trees and shrubs in winter the more you induce them to throw up sap or soft flowerless wood, summer pruning done judiciously and a little at a time has a tendency towards floriferousness and fruitfulness.

"Andromedas, are they poisonous to the touch?"

Ans. We don't think so; at least we have handled them a good deal without perceiving any ill effects from them. At the same time other people may have different experience, for we must bear in mind that the stagger bush (*Andromeda Mariana*) an abundant native shrub has a bad reputation in this way, its foliage is considered poisonous to domestic animals that eat it.

HOLLY TREES.

A reader in Hagerstown, Maryland, writes: "I am very anxious to have a holly tree, but some one tells me I would have to wait twenty years for the berries. (1). Is that true? (2). Do they need a rich soil? (3). Much water? (4). Protection?"

2. They are not particular. But we find the finest specimens in the rich bottom lands.

3. While they love rich moist soil, they will also grow very well on upland. At Dosoris we have two trees on a south-facing slope, in rather dry sandy land, mulched in summer, and near by other trees which give them shelter, and they do very well. It is true though that their growth is much slower than it would be in richer and moister ground.

4. They are perfectly hardy with you and need no protection except from the cold sweep of the northwest winds, and all broad-leaved evergreens are benefited by that.

1. We submitted this inquiry to Mr. Gabriel Du Val, who is much interested in these trees and has a beautiful country home in Prince George's Co., Maryland, with splendid hollies on it (see Gardening, March 1, 1895, page 178), and he kindly replies as follows

"Although holly trees, undeniably are of very slow growth, yet I think the age of the tree has little relation to its bearing berries, and I am sure your correspondent is grossly misinformed that she 'would have to wait twenty years for the berries.' I have seen many young trees, not more than six feet in height and probably not more than six or eight years old—with quite a number of clusters of berries on them. It is true nevertheless, that the older the tree the more the berries. I would suggest to your correspondent the caution necessary to successfully transplant the bush. I know of nothing more uncertain as to results. The smaller the plant the better for the purpose, and a *sine qua non* almost is that the roots should not be disturbed but be transferred with the dirt in which they are growing."

QUESTIONS ABOUT TREES.

H. B. K., Hackensack, N. J., asks:

1. "The red flowering horse chestnut.—Is it as large a tree as the white one, and is it as suitable a tree for the street?"

Ans. It is not such a large tree as the common white horse chestnut, and on

THE MARGUERITE CENTAUREA

this account may not be so good a street tree. But it grows remarkably well here, forming middle sized trees and blooming abundantly.

2. "DO THE DOUBLE-FLOWERED HORSE CHESTNUTS do as well as the single ones in the vicinity of New York?"

Ans. Yes, every bit. Whether or no they may grow to become as large trees as the common horse chestnuts we have not had an opportunity of proving, but judging from their behavior at Dosoris there is nothing miffy or stunted about them, and they blossom freely, lasting longer in bloom than the single white, and with them we are spared the litter of fallen husks and nuts in fall that is so characteristic of single ones.

3. "IS PAUL'S DOUBLE SCARLET-FLOWERED HAWTHORN a suitable tree for a small lawn in this vicinity, and can it be trimmed to make a shapely tree?"

Ans. It is one of our choicest May-blooming trees and thrives very well about New York, especially if in land that isn't very dry or sandy. But this and all the European hawthorns are subject to red spider and mildew on their leaves in summer, and rust on their shoots. This has brought them into bad repute. Their good points, however, are so pronounced that we consider them indispensable, they always blossom well, and when young too. But the flowers of the double ones are not fragrant like those of the single ones.

4. "MY PLANTS OF KERRIA JAPONICA are now all single flowered, will they become double? This is the first year after purchase and the plants are about two feet high."

Ans. No. If they are single flowered now they are of the single flowered kind and will continue to be single flowered.

The Flower Garden.

CENTAUREA MARGUERITE.

This is one of the seed novelties this year, and comes to us highly recommended. We read that it is "a new variety worthy of extensive cultivation, superseding all the old varieties of centaurea, and bearing flowers in great profusion; these are pure white, beautifully scented and in form resemble the common yellow sultan; they are simply invaluable for cutting purposes. It is a hardy annual, and for a succession of bloom till frost sow at different times from the end of March to July. Height 2 feet." The above is a very good description indeed. Our illustration is engraved from a photograph of some flowers grown by Mr. Swenson of Elmhurst, Ill., last summer, who raised it from seed in the greenhouse in March, and later planted it out and treated it as an outdoor annual, and he was very much pleased with it. It is a form of the well known yellow sweet sultan (*Centaurea suaveolens*), and as its descriptive name might indicate, it was raised in Italy.

SHAVINGS IN MANURE.

A livery stable man has always hauled to my place, during the winter months, whatever manure he accumulated, hauling whenever he wanted to, at 40 cents a two-horse load. He has heretofore used "slough grass" for bedding and which rots readily and has no weeds. This year owing to extreme drouth this class of bedding is scarce and he is using pine shavings. We generally put the early winter and fall's hauling directly upon the lawn, did not this year on account of the shavings. Now I don't know whether to let him continue hauling or not. I've never had any experience with manure of this character. Would you continue getting it? Do you consider it as good as the other. Will it not take too long a time to rot? C. E.

Shavings are slow to rot, but like sawdust they are good absorbents. They won't hurt the lawns, however, especially if you rake the mulching off roughly in early spring with close toothed wooden rakes, that will spread it evenly, leaving the fine manure only on the ground. The manurial element in the shavings themselves is very little, and they are looked upon with suspicion as fungus producers, but we have used them in manure for ordinary vegetable and farm crops and have never known any harm from them. At 40 cents a load, (if the man brings you fair loads) we would consider that extra cheap manure, and be very glad to accumulate a big heap of it.

CLEMATIS DISEASE.

I have been very unsuccessful with my large flowered clematis as *Jackmanni* and *Henryi*. Some plants bought last spring were planted out and they started to grow all right, reaching seven feet high by midsummer, and some of them blossomed. But all at once the stems and foliage blackened and withered up as if they were burned. It was the same in my neighbors' gardens. [It is the common clematis disease. Nothing that we have tried has been quite effectual in either preventing or curing it. The fleecy white kinds like *Flammula* and *paniculata* are not subject to this evil.—ED.] J. O. B. Massachusetts.

AMARANTUS SALICIFOLIUS.—H. J. F., Pittsburg, Pa., writes: "Can you tell me something about the utility of *salicifolius* as an ornamental foliage plant? According to the description of a seedsman's catalogue it ought to be a desirable plant, but the nurserymen seem to ignore it. Is there anything difficult or unsatisfactory in its growth? I shall be glad to see something about it in GARDENING." "*Salicifolius*" means willow-leaved and is a simple adjective descriptive of some plant of whose identity the only clue you give us is "an ornamental foliage plant." This leads us to believe that you refer to the willow-leaved or fountain like *Amarantus salicifolius*, a brilliant and splendid annual from the Philippines. Well we remember the furor it caused some 25 years ago when it was a novelty in our gardens, where its luxuriant growth, pyramidal fountain form and wealth of brilliantly colored, long, drooping, narrow foliage set us raving over its elegance. And for ten years after it held sway among novelties. But, although, it is as good to-day as ever it was, our seedsmen generally relegate it to their general list of cheap seeds. Florists seldom raise plants of it for sale, nurserymen never

touch it, it isn't in their line of business. It has its bad points too, for sometimes it refuses to be comforted, at others it grows nicely and all of a sudden rots off at the neck. With care, however, any one can grow some plants of it satisfactorily enough and then it is grand, especially when its leaves assume their brilliant hues about midsummer.

The Greenhouse.

GREENHOUSE PLANTS IN BLOOM.

The handsomest of the greenhouse vines now in flower is

BIGNONIA VENUSTA, a trumpet flower from Brazil. The scarlet-colored flowers are exceedingly pretty either in the bud state or when fully expanded. This plant does not show to itself to advantage in a small state, consequently it should be planted out in a box or border inside the greenhouse and the vines trained along the rafters; it is one of the best vines for this purpose. After it has finished flowering it should be pruned to keep it within bounds.

PAVONIA WIOTI.—This little Brazilian shrub belongs to the Hibiscus family. It may be said to be a flower of many colors, the stamens are bluish, styles and stigmas crimson, petals purple and the whorl of long narrow bractlets at the base of the flower are bright red. The correct name of it is *Goethea multiflora*, the generic name being in honor of Goethe, the German poet, who was a great lover of plants.

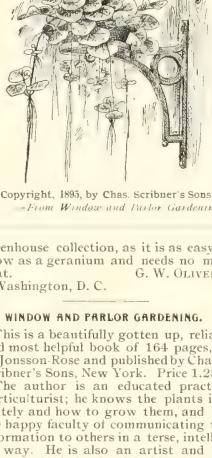
PITTOSPORUM UNDULATUM, a cool greenhouse shrub from Australia, is hardy in the extreme southern states and deserves to be better known. Its flowers are small, white, and in clusters at the ends of the branches. Its main attraction is the exquisite perfume, which resembles that of the Dutch hyacinth. [It is one of the kinds of seeds sent to us recently from New South Wales and which we have distributed among our readers so far as they have applied for them. Ed.]

OCHNA MULTIFLORA begins flowering with the new year. It is a small shrub from Sierra Leone with yellow drooping flowers not unlike those of a yellow cinquefoil. The flowers are not pretty enough to find favor with amateurs, but its beauty lies in the fruit and receptacle, the latter being bright red, with the fruit at first green, then deep purple, arranged on the receptacle in a circle. The seeds sprout easily and the seedlings flower the second year.

THE FRAGRANT OLIVE (*Osmanthus fragrans.*) A small plant of this well-known shrub, if at all in a healthy state, can be relied upon to flower all winter. The flowers, which look like those of the common holly bush, are inconspicuous, but the perfume from a few of them is sufficient to scent a good-sized house.

STROBILANTHES (*Goldfussia*) ANISOPHYLLUS and *S. isophyllus* are exceedingly showy, light purple flowered greenhouse plants which spend the summer in making immense numbers of slender twiggy growths. These are covered for several weeks in winter with their pretty flowers. They require little care in summer beyond planting or plunging out in a sunny situation.

ORCHIDS.—In the orchid collection at the White House conservatories *Lælia anceps* and *L. Arnoldiana* are in fine flower; the last named is the most floriferous of the two, many of the spikes having 8x10 blossoms. *Cattleya Trianæ* and its numerous varieties are well represented; this is one of the most gorgeous flowered orchids and plants of it are cheap enough nowadays for even those of limited means and accommodation to experiment with. *Cypripedium insigne* is grown here on a large scale; 3,000 blooms of it were used on the dinner table here at the cabinet dinner last week. It is the best known of all the tropical lady's slippers, and should be in every



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—*From Window and Parlor Gardening.*

greenhouse collection, as it is as easy to grow as a geranium and needs no more heat. G. W. OLIVER.

Washington, D. C.

WINDOW AND PARLOR GARDENING.

This is a beautifully gotten up, reliable and most helpful book of 164 pages, by N. Jonsson-Rose and published by Charles Scribner's Sons, New York. Price 1.25.

The author is an educated practical horticulturist; he knows the plants intimately and how to grow them, and has the happy faculty of communicating this information to others in a terse, intelligible way. He is also an artist and has illustrated his book with fifty-three engravings, every one of them original and the work of his own pen. What a relief this is! The illustrations are true to life; they are the pictures of plants, flowers, implements etc. as they exist, and have none of the exaggeration of made-up figures. Through the courtesy of Messrs. Scribner we are enabled to show you two of these pictures; one is from the chapter on propagation and shows how to make cuttings of different plants; the other is of the mother-of-thousands saxifrage (*Saxifraga sarmentosa*) as a bracket plant in the parlor window. The book begins by telling us of the advantages and pleasures of window gardening, and then the different parts of the plants are explained to us. Now follow chapters on appliances, soils and manures, propagation, potting, forcing, watering, cleaning, special windows and terrariums, frames and pits, light, temperature and moisture, insects and diseases, decorations, baskets, vases and window boxes, and the veranda and how to adorn it. Then come chapters on the selection of house plants, in which these are classified, enumerated and severally dealt with. We heartily recommend this book to our readers. It has none of the twaddle and nonsense peculiar to many works on this subject. It may be had from the publishers of GARDENING at the Chicago office.

THE NEWER REX BEGONIAS.

The finest of the newer begonias is Mrs. E. Bonner, a cross between *B. Rex* and the old *B. discolor*, it has marvelously fine leaves with a tendency to make a joint growth.

Bertha Morrison is the result of crossing the variety Comtesse Louise Erdody with old Queen of Hanover, and it is one of the most distinct of the whorled type. The Infanta is also another new whorled variety showing a character quite its own, it is not so twisted as some of the others, but enough so to command attention. Perle Humfeld, Bertha McGregor, Wm. Robinson, Mrs. Sheppard, Mme. Montet and Robt. Jenkins are all modified forms of the Rex, and brought about by crossing it with the better class of the shrubby or "flowering" kinds. No collection, however, should be without Louis Closson, Lesondsi, Siebold, Belle Poitevine, Monge and Desfontaines, these are all distinct in either form or color of leafage. It may be remarked that all the Rex type enjoy being outside in summer time in shaded positions. I have seen some very fine beds on the north side of building screened from the sun.

I hope some one may be induced to try cross fertilizing the newer Rex varieties with such kinds as Thurstonii, Mme. Lionnet, Duchartre, *metallica*, *manicata*, and the ranker shrubby varieties. I see no reason why we should not have the charmy leafage and bright coloring of the Rex on stems three to four feet in length. Let some of your amateur readers try inter-crossing on the lines suggested; it would be interesting and a source of much pleasure, to say nothing about the prospective pecuniary reward which would accrue to the raiser of a new variety possessing strong stems studded with the leafage of the Rex. [It was Mr. Hill who had the collection of magnificent specimens of Rex begonias that were exhibited in Horticultural Hall at the World's Fair. —ED.] E. G. HILL.

Richmond, Indiana.

CHRYSANTHEMUMS AND DAHLIAS FROM SEED.

P. J. V., Ste. Marie, Ill., writes: "Please tell me how to raise and cultivate from seed (1) chrysanthemums, (2) dahlias, so I may have flowers this fall."

1. CHRYSANTHEMUMS are as easily raised from seed as are ten week stocks or China asters, except that you must sow them early, say in February or March to have the seedlings bloom well next fall. Sow the seeds in a pot, pan, or box in the window or greenhouse and treat them much as you would pepper plants or tomatoes. Use light soil. Prick off the seedlings singly as soon as they are fit to handle. When they grow big enough to touch one another transplant them farther apart in the pans or boxes or pot them singly. Don't let frost touch them. Gradually harden them off in spring and plant them out early in May, and after that, so far as watering, cultivating, staking, disbudding, lifting and potting and other cultural details go treat them precisely as if they were other chrysanthemums raised from cuttings.

2. DAHLIAS.—"Double flowered" dahlias from seed are generally a medley lot of very little account, so we seldom

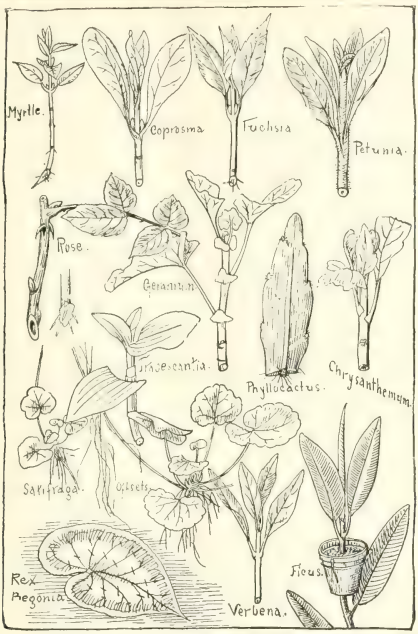

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ILLUSTRATION FROM WINDOW AND PARLOR GARDENING

bother raising them. Very fine single-flowered dahlias, however, may be raised from seed, and the seedlings bloom abundantly and early the first year. From seed sown in March in pots or boxes in the window or greenhouse you should get plants that will begin blooming in July, and from April sowing in a frame, to begin blooming in August. Dahlias seeds are large and not unlike those of zinnias, and they germinate quite as readily. Prick the seedlings off singly, harden them well beforehand and then plant them out about the middle of May where you wish to have them bloom, in moistish, deeply worked, rich soil. The tubers of these seedlings are just as good for lifting and storing over winter as are those of old varieties.

THE GREENHOUSE.

Get all manner of plants that require it repotted and ready for a good summer's growth. Use clean pots, drain them effectively, in repotting have the ball of the plant deep enough that the fresh soil will completely cover it, but not so deep that an inch or so of the stem will be buried. In potting ram the soil very firm. A loose soil when well watered becomes a mud puddle; a very firmly packed soil no matter how much watered retains its firmness, and the plants in their short jointed firm wood soon show which is the better practice. The soil used in potting while somewhat moist should not be wet; in fact it should be very free and mellow. Never use a large pot for a small plant; overpotting is very injurious. Newly potted plants should be kept only moderately moist at the root till young roots begin to grow into the fresh soil; they enjoy a moist atmosphere though, and in the case of fine-leaved plants like dracænas, crotons, marantas, aralias, anthuriums, alocasias, and the like syringing them overhead twice a day, say in the morning and again in the early afternoon does them much good. The blossoms of plants, however should never be syringed overhead.

Put in some cuttings of all manner of plants increased in this way, for instance carnations, begonias, libonias, eupatoriums, marguerites, stevia, streptosolen, fuchsias, habrothamnus, cytisus, asparagus (*tenuissimus*), myrtles, double petunias, plumbago, passion flowers, and many others. Bouvardias if they have been kept rather dry at the root since flowering may now be shaken out of their pots and their fleshy roots cut up into short pieces, say 2 inches long, if these are inserted as cuttings they throw out adventitious eyes that soon grow into nice little plants. If some clumps of *Anemone Japonica* are lifted and treated in the same way we can get up a nice stock of them for flowering next August and September.

Keep calceolarias cool, faintly shaded but near the glass, and give them lots of water and plenty room. Don't wet them much over overhead. The same with cinerarias and late Chinese primroses and pelargoniums.

GREENHOUSE QUESTIONS.

H., St. Louis, asks as follows:

PITCH OF A GREENHOUSE ROOF.—Will not five inches of a fall do?

Ans. Yes, very well. Seven and a half inches in the foot is regulation pitch. The more pitch the more sunlight and sunheat, and *vice versa*.

2. "LIME WATER, how often should house plants have it?"

Ans. Now be careful. Don't give lime water except for some special purpose as the killing of worms in the soil, and then only to carnations and soft wooded plants generally. Don't give it to evergreen shrubby plants as azaleas. Only repeat the application as may seem necessary for the specific purpose for which it is used.

3. "JAPAN ALLSPICE AND MAGNOLIA FUSCATA.—Where can I get them? I cannot find them in any of the catalogues I have."

Ans. Try John Saul, nurseryman, Washington, D. C., Prosper J. Berckmans, Augusta, Ga., or Reasoner Brothers, Oneco, Fla., or R. D. Hoyt, Seven Oaks, Fla.

4. "ROSES AND CARNATIONS.—Can they be grown successfully in the same greenhouse?"

Ans Yes, but not with the certainty that they can in separate houses. When grown together the roses are generally climbing varieties; pot plants may also be grown pretty well. Particularly avoid a high temperature especially at night.

ASPARAGUS SPRENGERI.

Here is a new and beautiful ornamental species for cultivation in our greenhouses and window gardens. Although it is new in our gardens it made rapid strides in popularity in Europe last year. Mr. F. W. Burbidge, curator of the Botanic Garden, Trinity College, Dublin, writes as follows in the *London Garden* November 9, 1895 about it. "I consider this one of the most distinct of all the indoor species, and as a contrast in form, habit, and color to *A. plumosus*, *A. decumbens*, etc., it well merits the attention of all interested in greenery for bouquets, wreaths and sprays. But it is most handsome as seen drooping gracefully and naturally from pot or hanging basket in a warm plant house or conservatory. * * It is an evergreen species with silvery tubers, reminding one of those of some kinds of oxalis, and its growths are thrown up in free and plumose manner like 'Prince of Wale's feathers,' as a lady said the other day. These feathery growths vary from 2 to 8 or 10 feet in length, and being of a fresh light or apple green hue, are admirably adapted for all delicate decorations indoors. I have had cut fronds in water that were quite fresh six weeks after they were cut from the plants. Like all the species, this will grow in almost any soil, but in large pots or baskets of rich compost with a handful of bone dust the plumes are very long and beautiful. Another way is to plant out the crowns along the margins of the stages and allow the growths to fall over naturally like a green curtain or cascade. My plants are in pots on a shelf and hang down over the head of a doorway, and they form an admirably fresh green background for a few cattleyas or dendrobiums in flower."

FERNS.

We are now busy potting up our ferns of all kinds, deciduous and evergreen, mature and young, those in full leaf and others that had been cut over and at rest. Repotting them now does not mean that we are going to force them into renewed active growth at once, on the contrary, by keeping them moderately cool and inactive we hope to secure a good showing of young roots in the new soil before the young fronds begin to expand. Many growers insist that the proper time to repot ferns is just as they are about starting into spring growth, but we cannot wait for then, we must do now everything we possibly can to lighten our labor when the rush comes a month or two hence. Besides repotting ferns now is perfectly proper.

SOIL.—For our general stock of ferns such as adiantum, pteris, nephrodium, aspidium, and vigorous growing kinds generally, we use the same compost that we do for roses or carnations, that is the best rotted sod loam and cow manure that had been mixed and stacked for a year and add a fourth of its bulk of fine leaf mould. In the case of young plants we may add a little sharp sand, sometimes some sifted coal ashes. Golden ferns like less manure and more loam. For several kinds of surface rooting or creeping ferns we use fern root, swamp moss or the rough fibrous soddy stuff saved from the loam when sifting it.

POTS.—Be sure the pots into which the ferns are to be repotted are perfectly clean inside and dry. When plants are potted into dirty pots the roots when they grow out are sure to stick to the insides of the pots and when the plant is turned out the roots tear, but when the pots used are clean and dry, no matter how much root bound the plants may be we can turn them out of the pots without a torn or broken root, just as clean as jelly out of a mould.

DRAINAGE.—In repotting plants of all kinds good drainage is necessary. In the case of fast growing young stock like geraniums, coleus, and the like, for pots under 5-inch size we regard the hole in the bottom as drainage enough, and in fact we do the same with such vigorous ferns as *Pteris tremula* and *Nephrodium molle*, but delicate plants of all kinds especially finely rooted plants should have the equivalent of a rubble drain in the bottom of their pots, this consists of a layer of broken potsherds, broken brick, broken charcoal or cinders sifted from the ashes, placed over the hole, and a thin layer of chopped moss, half rotted leaves, the fibre sifted from the loam or something of that sort spread over the rubble to keep the soil in the pot from working down among the rubble and clogging it and stopping the drainage. It is a safe practice however to use this rubble drainage in the bottom of all pots for ferns, because most ferns are water-loving plants, and should get lots of water, and ample provision should be made for its ready drainage so as to keep the soil good and sweet. This is a vital point.

REPOTTING.—Never repot a dust dry plant nor a soaking wet one, the best condition of the ball of roots and soil is slightly moist. When you turn the plants out of their pots even the drainage in the bottom is likely to be enclosed in a tight mass of roots, and it probably will be necessary, in order to get the plant deep enough in the new pot to break away the roots about the old drainage, removing the latter too. Keep the plants well down in the pots, to give plenty of room for water, and in potting pack the soil firmly with a smooth, blunt piece of wood, not too thick to work easily between the old ball of roots and the side of the pot. Don't over-pot the plants. From a 4-inch pot into a 6-inch one, from a 5 into a 7, from a 6 into an 8, and so on is about right for vigorous sorts, but small or slender or poorly rooted ones had better go from a 4 into a 5, from a 5 into a 6 and so on. Don't bury the crowns of the ferns. In potting ferns having above ground running rhizomes such as many davallias and polypodiums, be sure to have them on top of the soil, even if you have to use a wire, cane, or wooden peg to keep them there till they firm themselves with fresh roots.

INCREASING THE STOCK by means of division is all right in the case of adiantums like *pubescens* and *formosum*, and from runners as with *Nephrolepis davallioides furcans*, but in the case of ferns easily raised from seed as common maidenhair, crested pteris and *Aspidium falcatum*, we get far better plants from seed, or spores rather, than in any other way. Of course *Adiantum Farleyense* must necessarily be propagated by division, as it never bears seed.

YOUNG FERNS.—Pick up and pot singly all the little ferns say of pteris or adiantum you may find growing spontaneously in other pots, on the benches or on the floors. A mixture of finely chopped moss, leaf soil and sharp sand is a good compost for the first potting of these little plants.

WATERING FERNS.—Never let a fern get quite dry, nor a growing or evergreen fern so dry as to wilt. Give them plenty water at the root and have the atmosphere moist where they are grown. While we may syringe or hose over the young ferns every fine day with more good than harm, wetting the foliage of specimen maidenhair or powdery ferns does them no good.

SHADE.—Pellæas and some others may bear the sunshine with fairly good grace, but open sunshine doesn't do any of our indoor ferns any good; on the other hand it yellows and disfigures them, therefore they should be kept moderately well shaded, adiantums especially so.

HOT BED PIT, BRICK OR PLANK, which is best, without regard to cost? asks J. O. B. He writes: "I have no greenhouse, but raise a good many flowers in hotbeds, having to buy the manure. Tell me how to build it?" *Ans.* Brick by all means. Arrange to have the bed in the frame a little above the ground level, never under it. Two feet deep of manure make a good hotbed; indeed 18 inches is more commonly used; then say 2 feet deep of manure, 4 to 6 inches of loam, and 9 inches between bed of loam at front and the glass; this will require a front depth of good 3 feet. Four to six inches higher at back than in front is the rule as regards plank frames, but with so permanent a structure as one of brick we should use say 9 or 12 inches higher at back than in front. This gives you better sunlight. Let the front wall rise about 15 inches, including plate, above ground in front and 2 feet or thereabout at back. If the brick wall isn't proof against admitting frost when the frame is in use, bank around it with earth, manure or leaves. If you use this pit as a cold frame in which to grow pot plants in spring and fall the walls being 2 or 3 inches higher all around may give you better service.

SEEDS FROM NEW SOUTH WALES.—C. W. P., Shickley, Nebraska, and others. No, they are not hardy. They may be slow to germinate too. Sow them in pots or boxes in the window or greenhouse, or delay till early in May, and then sow them out of doors, shading them till the seedlings appear.

Orchids.

NOTES ON ORCHIDS.

The various articles on orchids, especially cypripediums, in GARDENING are not only very interesting to the amateur, but also instructive, and are therefore read by me very promptly. Having a little collection of cypripediums of my own [Mr. Uihlein has, we believe, the largest and most valuable collection of these beautiful orchids in the west.—ED.] I take liberty to say a few words of my own experience. December and January are probably the two best months for this class of terrestrial orchids, as not less than some seventy different kinds are in bloom in my greenhouses just now. We have firstly all the different types of the *C. insigne*, such as *Robinsonianum*, *montanum*, *maculatum*, *Maulei*, *maximum*, *albo marginatum*, *Mandevillianum*, *Mooreanum*, *Shylletense*, and dozens of others, too many to enumerate. Then there are the robust growing *C. Chamberlainianum*, *Dauthieri superbum*, *calurum*, *cardinale*, *pavonium*, *nitens*, *Harrisianum*, *Schlimii superbum* and *albiflorum* and *venustum pardinum*. Then I must not forget to mention the splendid *Spicerianum* offsprings, such as *Lathamianum* (*Spicerianum X villosum*), *Leeanum* (*insigne X Spicerianum*), and *Uihleinianum* (*Spicerianum X Curtisii*). The latter is an introduction of 1894 by F. Sander & Co., London, and it is very fine. It is in bloom here since December 1 and may last two or three weeks more. The following will be in bloom within a few days: *Vermixium*, *chlorops*, *Sedeni grandiflorum* and *superbum*, *Calypso*, the excellent Oakwood var., *Wedlichianum*, *Haynaldianum*, *Melanophthalmum*, *Boxallii*, *barbatum biflorum*, *Harrisianum nigrum*, and many more.

Some kinds were recommended to be grown in baskets, but I find best results invariably in pots. Use charcoal very liberally, small cut peat mixed with some yellow loam same as we use for potting palms, keep the pots and temperature well moist, but avoid watering from overhead. My plants are sound in foliage and some of the 6 inch pots show as many as eight fine blossoms each. I must confess there is a great deal of satisfaction for an amateur to grow cypripediums, as they are very easily managed, bloom regularly and remain in blossom for a long, long time. As to temperature I will say 60° to 65° suits most of them all the year around. The venustums, concolors and insignes do well out of doors from June until the middle of September in a shady place.

Of other orchids the *Cattleya Trianæ* and *C. Percivalliana*; *Lælia anceps*, *albida*, *autumnalis* and *Eyermaniana* have passed their prime, whilst *Arpophyllum giganteum*, *Zygopetalum crinitum*, *Saccolobium guttatum* and *S. giganteum*, *Oncidium Jonesianum* and *O. undulatum*; *Sophronitis grandiflora*, *Epidendrum cochleatum* and *E. ciliolare* are in full bloom.

Within a week or so there will be in blossom *Vanda Amesiana*, *Saccolabium illustre* and *S. ampullaceum*, *Hartwegia* species, *Catasetum* species, *Calanthe*

CHRYSANTHEMUM WM. SIMPSON

Turneri and *C. Veitchii*, *Phaius grandifolius*, *P. Bernaysii* and *P. Wallichii*, *Oncidium incurvum*, *O. Cavendishii* and *O. pubescens*, *Leptotes bicolor*, *Phalænopsis grandiflora* and *P. Stuartiana*, *Odontoglossum Rossii*, *O. pulchellum majus* and *O. luteo-purpureum*, *Lælia cinnabarina*, and last but not least *Dendrobium fimbriatum* and *D. fimbriatum oculatum*, *D. suavissimum*, *D. nobile*, *D. Dalhouseanum*, *D. Wardianum* and *D. chrysanthum*.

Prices of orchids have been greatly reduced the last few years, so that it does not require a little fortune to decorate the conservatory with a few of these elegant bloomers. This is especially true of the cypripedium family, and no conservatory should be without a dozen or two of the different types.

Chicago. EDWARD G. UHLEIN.

Chrysanthemums.

CHRYSANTHEMUM WM. SIMPSON.—Undoubtedly this is one of the finest of all our new varieties. It is a broad-petalled, incurved Japanese sort, having the center fully closed up, and with reflexing lower petals that add materially to its massiveness; in color it is of deep Maud Dean pink; in form somewhat like Mrs. E. G. Hill, and its blossoms, which are borne on upright stiff stems, measure from 9 to 11 inches across. It was raised from seed saved by Mr Joseph Heacock, Wyncote, Pa., from his own plants in the fall of '93; first bloomed in '94, and in '95 captured the highest honors at our horticultural exhibitions; the judges on new chrysanthemums gave it 86 points out of a possible 100. It is also one of the earliest of our large-flowering varieties, being in good bloom in the latter part of October. It is an excellent example of how quickly our florists detect the good in a plant, and when they have found sterling merit how vigorously they can propagate the variety. Two years ago the seed from which Wm Simpson was raised was sown; to-day over 100,000 plants, and all propagated from that one seedling, are ready for the market.

Roses.

PRUNING OF GREENHOUSE ROSES.

How shall I prune La France, Niphetos and Souvenir d'un Ami roses; when should it be done, and how much should I cut out of them? These roses were planted out in my greenhouse twelve years ago. Niphetos and Souvenir d'un Ami are in bloom now, but La France is not so profuse. My greenhouse has a southeast exposure, and is somewhat shaded in summer. M. W. R.

Iowa City.

A few of the small sprays of non-bearing wood may be cut out now if the plants are very full of it, but do this sparingly at this season of the year. Defer the general pruning till the end of next July or the beginning of August; previous to that, however, say for about four weeks, gradually withhold water from them, so as to somewhat ripen the wood without causing it to shrivel or the leaves to drop off, but it should be sufficient to check the young soft growths, in fact to virtually stop the plants from producing any new growths. When the wood has been ripened up sufficiently take a pair of sharp pruning shears and starting at the base of each plant cut away all the small spray like branches back to good sound eyes on each shoot producing them, then shorten the main strong branches back to within four or five eyes of the base from where they last started, but be careful to leave some green leaves on each shoot if possible. Then every branch and leaf should be carefully raked off and cleared away, and a good spraying of water from coarse rose on the hose given to the whole house, and at the same time giving a fairly liberal watering to the roots. Wait long enough to allow of the surplus moisture drying up, then with a stout rake draw away from the surface of the bed as much of the old soil as can be done without injuring the roots and remove it from the house, and replace it with a liberal top dressing of equal parts good loam and well decomposed manure well mixed up before putting it on, and make the surface level. Then give the whole a watering sufficient to go down as deep as the roots are. After this attend to daily syringings, etc, and the result will doubly repay the cost and trouble for the next winter's supply of roses.

JOHN N. MAY.

ROSE SEED.—G. H., Yarmouthport, Mass., asks: "Is the enclosed rose seed good and ripe enough to plant now?" *Ans.* Hep pretty dry, but on breaking it and cutting the seeds open they seem to be alive and well If the seeds is old it may take a long time to germinate.

The Fruit Garden.

THE ORIGIN OF THE BALDWIN APPLE.

The following account of the origin of the Baldwin apple was prepared by B. V. French, vice-president of the Massachusetts Horticultural Society and published in the *Horticulturist* of Albany, N. Y., January 1847. These facts concerning this well known fruit may be of interest to your readers, and they exemplify the permanence of the "really excellent." As it appears this variety highly esteemed yet in many sections of the country has been favorably known for at least 150 years. J. C. BERRIEN.

Steubenville, Ohio.

"This justly esteemed fruit originated in Wilmington near Boston, in that part which now makes a portion of the new town of Sommerville, in the county of Middlesex, Mass. The original tree grew on the farm of a Mr. Butters and was known for a time as the "Butters apple." This tree was frequented and pecked by the wood pecker, and Mr. Butters called it the "wood pecker" apple which was soon abbreviated to the Pecker apple. My trees which I set out twenty-eight years since (1818) are registered "Pecker." This fruit must have been known about a century. Orchards were propagated from Mr. Butters' tree, pretty freely about seventy-five years since by Dr. Jabez Brown of Wilmington and Col. Baldwin of Woburn and their sons, to whom the public are principally indebted for bring-

ing the fruit so generally into notice. From Col. Baldwin and his family, who introduced it largely into public notice, it took the name of "Baldwin," by which the fruit is now everywhere known. I am informed that Major Samuel Jaques, of Sommerville, eminent as an agriculturist breeder, and horticulturist, as well as a public benefactor of his age now owns that part of the farm on which the original Baldwin tree grew, and has placed a monument on the site where it o ce flourished. It has been thought by some that there were three varieties of the Baldwin, as some fruited annually, some every odd numerical year, and some on the even years which (as this 1846) is the general fruiting year. But on a carefulinvestigation they are found to be identical. The tree with us for thriftiness, for hardiness, for fine form, and for vigorous strength, for its abundant bearing, and the beauty and long keeping of its fruit is placed at the head of all other NewEngland winter apples. The fruit is always fair above medium size of a fine rich red and yellow color. The flesh nearly tender, in color, yellowish, rich, juicy and fine flavored; excellent for the table or cooking and is in use from November till May."

THE FRUIT GARDEN.

Our grape vines are all pruned and tied. Where vines are buried leave them undisturbed. Apple, pear, peach, plum and other fruit trees are pruned and all wounds painted over. We have some stem-scraping to do yet; this is done by a common iron tree scraper; we scrape off the rough loose bark, and then paint the stems with a kerosene wash—one-third kerosene. This kills the scale, if any, and doesn't hurt the bark at this time of year. If bark scale is seen on any of the young trees—dwarfs especially—we spray them all over with this kerosene wash. During the last three or four years pear tree blight has played sad havoc among our dwarf bearing trees, taking the healthiest, biggest and best of them, and those growing in the heaviest ground. We cut away all affected parts as soon as noticed and burn them. We also spray with ammoniacal solution, but really the spraying hasn't checked the evil. In some of our dry sandy land we have dwarf pear trees, say from 15 to 20 years old, but they are gnarly and unhappy, so we are going to root out every one of them this spring and plant low worked standards in their place. Some of these we already have there are very thrifty indeed, and show none of the stunted appearance of the dwarfs on quince roots. In planting dwarf they are generally set 3 feet in from the walk and 10 feet apart. The 3 feet is far too close. If you have room set them back 5 feet from the walk, and 12 feet apart. You can grow flowers or small vegetables between them. The dwarf pear trees we have on good soil do very well indeed.

GRAFTING CHESTNUT AND WALNUT TREES.

T. H. M., Conn, asks: "Can the large French chestnut and the English walnut be grafted successfully on our native chestnut and hickory trees?"

Ans. The "French" chestnuts can be and are grafted on our common wild chestnut trees. In fact some wide awake farmers that have chestnu groves on rocky hillsides have cut down the native trees and utilized the root sprouts from them for grafting the finer varieties, notably Paragon, on. But we don't think you will have much if any success grafting the English walnut on our native hickory. Grafting walnuts on walnuts is all right, but it requires an expert to handle a hickory, and even then it is far from a tractable stock. You should get the book "The Propagation of Plants (Fuller)," price $1.50, from our Chicago office. Mr. Fuller, an experienced practical tree man, tells about these things. He is at work on a new book altogether devoted to nut trees, and it will be published soon.

GREENHOUSE GRAPE VINES.—C. W. R., Whitehall, Mich., writes: "Have been greatly interested in Mr. Gardiner's article, page 139-140, and would ask (1) if vines can be planted in open ground in well prepared beds this coming spring, protected during next winter as instructed in the article, and house built in spring of 1897, for their accommodation, also (2) where the vines of these foreign varieties may be purchased?" *Ans.* 1. That depends on how grape vines do in your place; if the Rogers' hybrids as Salem are at all inclined to mildew in summer, then these exotic sorts would be worthless because of their susceptibility out of doors to that disease. To a large extent this is why they need a greenhouse over them in summer, and top not side ventilation. 2. Try John Gardiner, Jobstown, N. J.; or Ellwanger & Barry, Rochester, N. Y.

The Vegetable Garden.

FORCED VEGETABLES.

F. S., Des Moines, Iowa, is a market gardener and grows various kinds of vegetables in greenhouses in winter, but some of them are not doing well with him. The soil used is old hotbed compost. Unfortunately he gives us no cultural details; however, we shall do the best we can.

1. CUCUMBERS look bad; the leaves are drying up, in fact won't grow.

Ans. Root them out altogether; out with the soil too, and thoroughly clean the house they are in. It may be downy mildew or spot (anthracnose), either bad enough. If you sow or plant cucumbers there again use fresh soil, and be very guarded against cold draughts.

2. RADISHES not doing well.

Ans. If not too much shaded, too thick or too stuffy and hot and ill-ventilated, sowings put in now will probably come all right. You can grow radishes, lettuces, spinach, parsley or cauliflower all in the same house or temperature well enough, but you cannot grow cucumbers in the same house with them successfully; the amount of ventilation they will take would mildew your cucumbers to death.

3. LETTUCE doing fairly well.

Ans. And it should do better from this on.

4. PARSLEY growing very slow and showing white specks on leaves.

Ans. A little more warmth and sunshine, with water enough, and moderate ventilation will probably start it up afresh. Send us some of the white-speck leaves, so that we may try to find out what's the trouble with them.

THE VEGETABLE GARDEN.

Look over the root crops stored in the bins, cellars or pits to see that because of overdryness they don't shrivel, because of too much warmth they do not grow, or too much moisture they do not rot. Rub off any sprouts that may appear on carrots, parsnips, salsify or horseradish, or potatoes. Have all secure from frost especially potatoes, beets and carrots and keep the potatoes dark, that is covered over so as to exclude light from them, and in this way keep them from getting green, and hence unfit for use.

Prepare for spring. Gather together some fresh stable manure for hotbeds, and as soon as hard winter weather is past make up a bed in a warm, sheltered, sunny place. Sow some lettuce seed in boxes in the house or greenhouse, and prick off or pot off the seedlings when they come up, so as to have them ready to plant into the hotbed a little later on. Car ots sown in February or March in a hotbed are fit for use in May. Spinach do s well in hotbeds in spring. And we can get up some nice early cabbage and cauliflower from early sowings and have them half grown before planting out time, or the spring maggots get at them. Sow a box of Prizeteker onions in the house or greenhouse to plant out when the weather opens; this will give you very large bulbs.

If you have more rhubarb plants out of doors than you want dig up the surplus and bring them into a warm cellar and cover them over with common earth and give them plenty water, and they'll soon throw up nice tender leaf-stalks, and lots of them. Under the bench in a greenhouse is also a nice place for them. They will grow anywhere where they can have room, moisture at the root and warmth. The same with asparagus.

FORCING RHUBARB.

The difference in taste is much more appreciated in rhubarb that has been forced than that which is allowed to grow in the open air, the color also being much more enticing, and the little trouble required to grow it, should recommend it it to any one even if they have but little convenience; select two or three good strong roots that have been growing outdoors all the summer and lift them about November, let them lay out of the ground in a shady place about two weeks and if they get frozen a few times it will not hurt them. About December plant them in a box or large pot or anything that you can get the roots in without breaking them and after giving them a good soaking of water, place them in a cellar or under a bench or any dark place where the temperature will remain about 50° or 55°. In about three or four weeks it will be ready for picking. Fresh roots can be put in at intervals of a few weeks to prolong the season. Of course the roots are useless after being forced. THOMAS GRIFFIN

FORCING TOMATOES IN WINTER.

It is very easy for the amateur to provide his table with some nice ripe tomatoes in winter providing he has a greenhouse situated where it will get a fair amount of sunshine and he can maintain the temperature from 55° to 60°. Sow the seed about the middle of July and when the plants are up transplant them into small pots, and as they are filled with roots transplant them into larger pots till you finally have them into 10 or 12 inch pots, which is large enough to fruit them in.

Use a good rich soil and pot them very firm or they will make too soft a growth. Train them to one stem and keep all the laterals or side growths pinched off. Pot them in the greenhouse about the last days of September before there is danger from frost and tie the plants to a good stout stake or wire to keep them in an upright position. When they are carrying a crop of fruit water them with liquid manure

two or three times a week, and shake or tap the plant occasionally with the hand to distribute the pollen, which will fertilize the blossoms, this is best done about noon, when the air is dry and the sun shining. Give them plenty of air when the weather is favorable (but avoid draughts) which will enable them to make a good stocky growth.

THOMAS GRIFFIN.

Westbury Station, N. Y.

PUMPKINS SQUASHES.

WHAT'S THE DIFFERENCE?

G. W. C. B., Baltimore, Maryland, writes: "In some sections of country pumpkins, or at least such as are recognized as such in other sections are called *squashes* and then again in other sections this order of recognition is exactly reversed. Will you please define the difference between pumpkins and squashes, so we novices can make the distinction also."

We submitted your inquiry to Prof. L H. Bailey of Cornell University, who kindly replies as follows:

It is impossible to give any distinctions between pumpkins and squashes because the vernacular names are used very indiscriminately. Ordinarily, what people in Europe call pumpkins are what we call squashes. Perhaps I can best answer by saying that there are three types of pumpkin-like plants which we grow. One type is characterized by a soft, round stem to the fruit, and to this type belong the true squashes, like the Hubbard, Boston Marrow, Turban, Mammoth Chili, and the like. This species is *Cucurbita maxima*. Another type is characterized by a very hard and deep five-cornered stem, and this includes the true field pumpkins which are used so much for stock and for pies. To this type also belong the summer bush squashes like the Crookneck, and scallop varieties. This type is *Cucurbita Pepo*. This third type is characterized by a rather firm, cylindrical stem which has a large expansion where it joins the fruit and it includes the Cushaw, Canada Crookneck and Japan Crookneck types. This type is *Cucurbita moschata*.

L. H. BAILEY.

GLOBE ARTICHOKES.—A reader asks: "Can I grow these here in northern Massachusetts?" *Ans.* Yes, perfectly. Cut them over about November 1, and pile leaves on top of them two feet deep so as to keep hard frost out of the ground. Don't uncover them till April, till danger from sharp frost (say 5° or 10° or more) is past. They should do well in your part of the country. But give them deep, well drained soil in a warm sunny exposure if practicable.

SEA KALE.—The same reader asks about growing this vegetable, and writes: "I have a large basement cellar under the stable and carriage house and which isn't quite frost proof in winter. Using a manure bed there couldn't I force seakale in it in spring?" *Ans.* Yes, you can grow it very well. If you cannot get thongs or young crowns in spring to make a plantation with, get some seed. One year old seedlings will give nice little kale, but nothing like so good as two year old crowns. If from seed, grow them in rows 2 feet apart and the plants 6 inches asunder. About November 1 cut them over, draw some loam up over the crowns with a hoe (if in the field plow a furrow over them), then put a ridge of litter or old manure along over top of the row. All of this is to help against hard frost, for your climate is rather severe. Early next spring dig out every second crown and plant it in another row, this will leave your plants 2x1 foot apart in summer. For forcing in winter dig up the crowns in early November and store them in earth in a cool place in a shed or heeled in close together out of doors under a pile of leaves, there to be kept till needed for forcing. Make a hotbed in the cellar with a bed of earth on it and in this set the seakale roots pretty close together, then put on the frame, using close fitting shutters instead of sashes, and you should get fine kale. Asparagus, rhubarb, chickory, and mushrooms may also be grown in this frame. A little banking of manure around the frame and some hay or straw over the sash or shutter will make it snug from frost.

Mushrooms.

"SHOT" HOLES IN MUSHROOMS.

J. C., Pencoyd, Pa., writes: "I send to you a small box containing some diseased mushrooms. My first experience with this pest was noticeable on some of the last cutting of my first bed, the first cutting, say till December, had no signs of it. My second bed (bearing a fine crop) is nearly all affected like the specimens sent to you. I find by disturbing the cavity that it is full of tiny spider-like insects that are visible to the naked eye. What is it, and what can I do to save my crop?"

Ans. It looks to us like an aggravated case of "bullet" or shot holes, which you will find described in our book "Mushrooms: How to grow them," page 128. They are caused by a species of slug that eats a narrow hole through or deep into the cap of the young mushrooms. The spider like insects you refer to simply inhabit the holes and are the effect, not the cause of the trouble; they are almost always found in wounds in mushrooms, especially in the burst stems, but they do very little harm. Go into the cellars at night with your lantern and search for and kill the slugs. Sprinkle oven-dried fine salt all over the walls, floors, etc.; even if a little of it falls on the beds it won't hurt the mushrooms. Fresh lime may also be sprinkled on every bare surface but be careful to keep it away from the beds. "Catch them with young lettuce leaves" some one may tell us. Well, at this time of year lettuces are generally less plentiful than mushrooms.

MUSHROOMS, QUESTIONS ABOUT.

W. H., Hillsdale, Mich., asks as follows: "THE YIELD in pounds of mushrooms to 100 square feet of bed if a fair average crop is obtained?"

Ans. About three-fifths of a pound per square foot is a good average crop.

"AVERAGE PRICE at wholesale during the winter?"

Ans. The price to-day is 50 to 60 cents. It fluctuates greatly however, according to supply and demand and quality of mushrooms offered, say from 15 to 65 cents.

"FRENCH AND ENGLISH SPAWN, comparative yield?"

Ans. We get nearly twice as much in weight from English as from French spawn. Most market growers stick to the English spawn; still the French article has its friends, and its white skinned mushrooms when they attain a fair size are preferred in the market.

"PACKING FOR SHIPMENT, best method?"

Ans. In small chip baskets or light boxes, and these packed in larger crates. Consult your commission man, and pack as he advises you to. Pack in such a way as he can best dispose of the mushrooms.

MUSHROOM QUESTIONS.

C. D. Heath, Ypsilanti, Mich., asks: 1. "How long after spawning a bed at 89° should it be before the mushrooms appear in a house temperature of 50°? 2. Will a bed spawned at 89° 6 inches below the surface, in a house temperature of 50°, 30 days after spawning with temperature 3 inches below surface of bed 57°, grow mushrooms, beds being covered with rye straw? If they will not grow mushrooms, I can sow lettuce by starting hot water pipes."

1. At this time of year probably seven to eight weeks.

2. Yes. But you should have had that bed covered up long ago with enough straw to prevent the inside of it falling lower than 65°, then mushrooms would have showed much sooner. If it will pay you to use fire heat in your greenhouse for lettuces it surely won't pay you to sacrifice a mushroom crop rather than give it a little heat too.

MUSHROOMS IN THE GREENHOUSE.—G. E. B., Brooklyn, writes: "I am a commercial florist and have an old greenhouse now about empty; would it pay me to plant it to mushrooms now, say before the middle of February?" *Ans.* Be careful. A mushroom crop is expensive. To fill that house would cost you $25 or $30 for spawn, let alone fire heat, labor, etc. As a catch crop under the benches, we would say, go ahead. But if you mean to fill the upper benches as well as under them, you may have a great success, perhaps as great a failure. Better take a run out to see C. H. Allen, he is having fine success with them under his carnation benches, or to Thomas Griffin, his cellars are now a sight worth seeing.

WORDS OF PRAISE.—George S. Conover, the veteran horticulturist and historian of Geneva, N. Y., writes to tell us that Mr. Trumpy's article on "Select hardy trees," page 134, was one of the best he ever read, and he prays for more of it. Mr. John McElvery of Flatbush, Brooklyn, one of the most eminent, experienced and enthusiastic of water lily growers in the country, says "That article of Mr. Bisset's on 'Aquatics' in last GARDENING (pages 121-2) is splendid—the best I ever read. It hits the nail plump on the head; it is the precise truth from the first to the last, and told in a way that the most inexperienced can understand. Old lily man as I am, I read that article over twice before I laid the the paper down—couldn't help it." Mr. C. W. Redfern of Michigan was so interested in Mr. Gardiner's article on "Greenhouse grapes," page 139, that he has resolved to go and do likewise. These words of appreciation are very gratifying to us, and the writers of the articles in question deserved them. But it is so all through GARDENING; we give our readers the most trustworthy information obtainable—the voice of actual experience We have no theory, no argument, no padding; we have no time or space for anything but pointed information, helpful to our readers.

WE ARE ALWAYS deeply interested in everything in GARDENING. We have taken it from the first, and find it our best permanent advertising medium.

WM. H. HARRISON & SONS.

Lebanon Springs, N. Y., Oct. 25, '95.

GARDENING

WILLIAM FALCONER, Editor.

PUBLISHED THE 1ST AND 15TH OF EACH MONTH
— BY —
THE GARDENING COMPANY,
Monon Building, CHICAGO.

Subscription Price, $2.00 a Year—24 Numbers. Advertising rates on application.

Entered at Chicago postoffice as second-class matter.

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All communications relating to subscriptions, advertisements and other business matters should be addressed to The Gardening Company, Monon Building, Chicago, and all matters pertaining to the editorial department of the paper should be addressed to the Editor of GARDENING, Glen Cove, N. Y.

GARDENING is gotten up for its readers and in their interest, and it behooves you, one and all, to make it interesting. If it does not exactly suit your case, please write and tell us what you want. It is our desire to help you.

ASK ANY QUESTIONS you please about plants, flowers, fruits, vegetables or other practical gardening matters. We will take pleasure in answering them.

SEND US NOTES of your experience in gardening in any line; tell us of your successes that others may be enlightened and encouraged, and of your failures, perhaps we can help you.

SEND US PHOTOGRAPHS OR SKETCHES of your flowers, gardens, greenhouses, fruits, vegetables, or horticultural appliances that we may have them engraved for GARDENING.

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MR. A. W. BENNETT.—It was with much sorrow that we learned of the decease from typhoid fever on the 16 ult. of Mr. Bennett, Superintendent of Parks, Pittsburg, Pa. He was 31 years of age, the son of an eminent florist (the late Wm. Bennett of Flatbush, L. I.), had been engaged in horticulture all his life time, and for the last two and a half years had been connected with the Pittsburg Parks. Here he had a splendid opportunity to exercise his executive ability and professional talents, and he made the most of it, rendering the parks and conservatories so attractive that tens of thousands of people have visited the greenhouses in one day. He was a frequent visitor to Dosoris, a warm personal friend of our own, and an admirer of and contributor to GARDENING.

COLD STORAGE.—W. M. B., a produce and fruit dealer in Canada writes "for information concerning the matter of cold storage, etc." *Ans.* There is a newspaper in Chicago called *Ice and Refrigeration.* It is right in your line and I can give you a great deal more information on this matter than we can. Write to it.

CROTONS OUT OF DOORS IN SUMMER. Mr. P. J. Berckmans, of Augusta, Georgia, writes us: "For the last 2 years we have had remarkable success with crotons bedded out in full sunshine. The broad leaved varieties are the coming plants for that purpose, and I am satisfied that ere long they will be largely used everywhere. The more sun you can give them the better they show their colors."

ARISTOLOCHIA GIGAS STURTEVANTII is the "goose flower" vine that made such a sensation at the World's Fair in 1893. It is a tropical relative of our common pipe vine. It has very odd shaped blossoms 16 to 18 inches in width, and over 20 inches long with a long narrow tail 2 to 3 feet long. Like all members, tropical and temperate of the aristolochia genus it luxuriates out of doors in our warm summer weather. In the *Gardeners' Chronicle* just at hand is a fine picture of it as it appeared last year, in full growth and bloom, on the fence of the President's garden at the White House, Washington.

PROTECT YOUR HARDY PLANTS.—Now is the time when our plants are likely to suffer. When the days get a little warmer at noon and we are apt to have some mild spells, buds swell, sap moves faster, and growth begins to start; all of this is natural. The danger lies in the sudden coming of a cold spell after it; this is very injurious to many things. See to it that whatever covering, as mulching, over strawberries, globe artichokes, lily beds or the like, that you had put on in November or December, is still in place, that the shelter belts and screens are in good order, and that the fig trees, grape vines, blackberry bushes and other things layered and covered with earth over winter are nowhere bare and exposed to sunshine or wind.

NO FENCES.—A subscriber from Maryland writes: "There was much more interest taken in flowers here before the fences were taken down, but since then the dogs have been very discouraging." That's the key to the whole matter. We admit that wide, well kept streets with no fences on either side, but instead open smoothly shaven lawns between the residences and the side walk, are very imposing, and beautiful, aristocratic, and park like if you will. But if we want lots of flowers, and more especially handsome evergreens we must plant them back of our houses where we can fence them away from the dogs that pass along the street. If we could have no dogs with our no fences, then the floral and shrubbery effect of our front gardens would be splendid, but while the dogs run at will our hearts bleed for the ruffled beds and burnt evergreens.

BEGONIA FRŒBELII INCOMPARABILIS is a new begonia, a hybrid between *B. Frœbelii*, a species from Ecuador, and *B. polypetala*, one from Peru, and now making quite a stir in Europe. It is of vigorous, but low unbranched habit, with large foliage, and from the center throws up spikes two feet high of vivid orange scarlet flowers about two inches in diameter. Its value is as a glowing free-flowering winter blooming plant, coming in while the ordinary tuberous rooted kinds are in their beauty, and lasting well into winter. Many of our readers may remember how much *Begonia Frœbelii* was grown about 20 years ago for its floral brightness in winter, and how especially fine they were grown at the Such greenhouses, South Amboy, N. J. Unfortunately now days they are not nearly so common. They are tuberous rooted with an inclination to rest in summer and grow and bloom in winter.

TO FORM A FLORAL SOCIETY.—One of our subscribers wishes to get up a Floral Society; and asks how to set about it. Better write to the secretary of the Amateur Horticultural Society, Springfield, Mass.; Mr. R. Manning, secretary, Mass. Hort. Society, Horticultural Hall, Boston; and to Mr. C. E. Kemp, secretary Horticultural Society, Frederick, Maryland or secretaries of any other similar societies asking them for copies of the constitution and by-laws of their respective societies. These by-laws will be suggestive to you when you are framing by-laws to suit your case; then get your floral friends together and talk the matter over, and agree to form such a society. When you have drawn up a Constitution and By-laws, let all sign them who wish to become members, and pay their dues, then elect your officers, and you are a Floral Society. It is a laudable purpose, and there should be a society of the kind in every town in the country.

DWARF JAPANESE CHERRY PLANTS.—A reader writes us: "I have just flowered some dwarf Japanese cherries, how beautiful and fragrant they are! Why don't our people grow more of them? Two or three weeks forcing brings them into flower, even single branches cut off and placed in water in a warm room or greenhouse expand their buds in a few days. They are grand." The tree referred to is *Prunus Mume*, the most commonly cultivated ornamental tree in Japan. Although it attains arboreal proportions and is often planted as a shade tree along the road sides in Corea and Japan, it is also the most common of all pot plants there. There are single and double flowered forms, and varieties with red, white and pink blossoms, and the plants are often grafted, contorted and dwarfed as per the usual pot plant methods in Japan. *Prunus Mume* comes into bloom very early in spring, before the leaves appear and is really a very beautiful plant. It is perfectly hardy out of doors at Dosoris.

RAISING SEEDLINGS.—We have found February to be the best month in the year for raising seedlings in the greenhouse; we can keep the house at a more equable temperature, and the seeds germinate more evenly and show less inclination to damp off than in any other month. This applies particularly to begonias, gloxinias, gesneras, streptocarpus and other very fine seed, as well as to vincas, verbenas, nemembergia and the like that require to be sown extra early to have fine plants of in May. Mimulus, lobelia and torenia also do well sown this month and can be kept within bounds before planting out time. Wigandia, ferdinanda and fine leaved solanums used for outdoor summer gardening should be raised from seed as soon as practicable; and we always make it a point to sow eucalyptus, grevillea and *Schinus molle* in February. But March is soon enough to sow the average run of summer garden annuals, as marigolds, asters, zinnias, coreopsis, etc. In sowing seeds that you wish to germinate as soon as practicable, a

minimum temperature of 60° is desirable; shade the seed pans or boxes from sunshine and guard them against drying draughts.

SNAPDRAGONS AS WINTER FLOWERS.—About Boston they have been growing a fine white-flowered variety of antirrhinum for some years in the greenhouses for winter flowers, and it has become quite popular. Other people throughout the country have now taken hold of it and it is being grown considerably both in private conservatories and commercial greenhouses. Amateurs as a rule grow it in pots as they do carnations or cinerarias, but the florists plant it out on benches in the same way as they do carnations. New plants are raised from cuttings every year as we do stevias or carnations, and are grown right along to their flowering stage, for they need no rest in winter as hardy herbaceous perennials generally do. True, they are more biennial than perennial, and out of doors, if sown in spring, they bloom nicely as annuals. By pinching back the flower tips we can retard the blooming time as late as we wish; also by not raising the young plants so early in the season we can have them come into bloom, without much pinching at the required season. Altogether this white snapdragon is a pretty and useful and easily grown addition to our winter flowers, but we question its popularity being long-lived.

THE JAPAN CRIMSON GLORY VINE (*Vitis Coignetiæ*) is a recent introduction from Japan. It is a tall growing hardy ornamental woody vine whose foliage in fall assumes a splendid glowing crimson hue. Although a few plants obtained originally from Japan have been in cultivation in Europe for several years, it has so persistently defied the propagator's art, that it is only since a year or two that it has been offered for sale. Now let us give A. Blanc & Co., of Philadelphia, their due share of credit in this matter, they offer it in their catalogue for 40 cents each. In the English catalogues just to hand the price charged is seven shillings and sixpence a plant, exactly four and a half times as much as we can buy it for in America. This difference between the price of *Vitis Coignetiæ* there and here may be taken as a common example of the prices charged there for new plants as compared with what is charged here. The general public here here refuse to pay big prices for plants, and our florists and nurserymen know better than to charge big prices. When our florists get hold of a new and meritorious plant they urge its propagation to the utmost, believing that there is more money to be made by selling a thousand plants at 25 cents each than a hundred at a dollar apiece and we all reap the benefit of this impulse.

PLANTING TREES.—If you desire to plant any trees this spring prepare for it now. Make up your mind as regards what you want to plant and measure the ground and mark off the places for the trees; and as soon as the frost leaves the earth prepare the holes. The preparation of a hole does not consist of scooping out enough earth to make a cavity large enough to hold the roots of the tree to be planted, and no larger. Dig the holes deep and wide, say 2 feet deep and 4 to 8 or more feet wide, removing the sand in the bottom and filling up with good surface earth, then you are giving a tree a start in life that you will be glad for in later years. As soon as the holes are dug out fill them up full and let them stay filled till you are ready to plant the trees, when it is a small matter to redig them enough to plant it. In selecting the trees, don't go out into the woods for them, but send to a reputable nurseryman for the best nursery-grown stock obtainable. The nursery trees are straight stemmed, well headed, full rooted, and sure to grow from the first; but that from the woods is uncertain at best and often bitterly disappointing.

"POISONED BY CHRYSANTHEMUMS—ARE THEY GUILTY?"—In relation to this item page 138, I would answer Rev. J. C. Berrien in the affirmative; at least my own experience with these plants seems to prove that they are guilty of "poisoning" the skin. It also appears to me that they are much more liable to cause this irritation spoken of by your correspondent, if handled while the foliage is wet. To prevent the trouble I provide myself with a pair of driving gloves, from which the finger ends have been cut. These gloves I always wear when I work among the "mums," and thus obtain practical immunity from the annoyance. I also use as a further preventive an alcoholic solution or tincture of lobelia, which may be obtained in any drugstore, and which I always apply both before and after touching the plants If we may judge from the results attained in my case, I think that the Rev. Mr. Berrien by using the means indicated above will be able to continue raising "mums" and escape the trouble of which he complains. Above all things, however, let him keep his hands off while the foliage of the plants is wet.

Dayton, Ohio. THEO. MEUCHE.

CANNA ITALIA.—In this we have something wonderful. It was raised in Italy about four years ago. An illustration and description of it in *Gardening World* just to hand prompt us to refer to it. We read "The plant attains a height of 6 feet to 9 feet and bears spikes of bloom about 16 inches in length, and the individual petals measure 4 inches to 5 inches. * * The flowers are of a brilliant scarlet, conspicuously spotted, and have a broad border of golden yellow. The leaves resemble those of a musa in shape and size." A colored plate of the flowers that we have seen shows enormous blossoms of the Queen Charlotte type. Now for a bit of inside history. Just as soon as this Italian wonder was born and bloomed, it was noted by an American florist. The next season this florist offered $1,000 for three plants of it, but the offer was refused; $2500 was asked for six roots. The American would not pay this. Negotiation were again opened between them the next summer ('94) when the Italian firm offered to sell fifteen roots of Italia and the same number of a similarly large flowered yellow one called Austria to the American for $2500. This may seem to be a big story, but the original Italian letter is in our hands. Italia is now in an American greenhouse, however, and the owner of it writes us: "Now don't think for a moment that I paid $2500 for them but I have now two hundred plants of each, and am going to sell them soon at $5 a plant We have had it in bloom for some weeks and it is fully up to the description." Being here means multiplication of stock by the most rapid methods practicable.

WILD PLANTS *v.* NURSERY STOCK.—A landscape gardener came to us the other day to find out where he could get certain wild shrubs which grow in swamps, as he wished to dig up a large quantity of them to plants in masses to obtain certain effects. We answered him in this way: If you want to do good work, work that will satisfy the proprietor and redound in after years to your own glory, let those bushes stay in the swamps where they are, and go or send to the nurseries for the best nursery-grown stock of the kinds you want, and take no other. Plant these and they will grow and look well from the first. Mr. A. B. does not want any cheap trash on or about his place; he wants nothing planted to-day that will be an unkempt dying or dead shrubbery—as your swamp collected stuff will be—next year. Don't talk about the cheapness of it. We have been in the nursery business and know how cheaply nursery stock can be gotten up and sold; we have also dug up rhodora, winter berry, azalea, clethra and other shrubs in swamps and planted them in gardens, with the usual mortifying results. True, certain nurserymen make a business of collecting wild plants and growing them in nursery rows for one or two years till they become "established" plants; well, this stock is all right, for in disposing of it they sell only what is well rooted and in good health, rejecting the rest. And as a rule we can buy this stock from them cheaper than we ourselves can collect it. These nurserymen also collect small plants or young seedlings, as of kalmias or rhododendrons, and transfer them to their nurseries, growing them on for some years, and making good stock out of it.

SUMMER-FLOWERING BULBS, ETC.

Don't let canna roots get very dry. They should have been stored with the earth adhering to them; if you didn't do this spread a little loam over them to keep them from getting too dry. Keep them cool but always above 40°. A few canna roots potted now and brought into the greenhouse will make nice blooming plants in two or three months. Star of '91 is one of the best for this purpose.

It doesn't matter much how dry we keep the dahlia tubers they seem to keep well enough, still overdryness shrivels and weakens them, and much moisture causes them to grow prematurely. If you have any extra fine variety you wish to get more of put it into a pot or box of earth now and bring it into the greenhouse or window and let it grow; the tip of every shoot can be taken off and used as a cutting in the same way as we make and strike cuttings of other plants.

It is well to go over the gladiolus bulbs, pick away the bulblets and save them, and remove the rough outer husk and dead bulb from the base. See that they are quite dry and stored in small bulk, that is not over a few inches in depth; also keep them cool, 45° to 50°, to prevent them starting into growth too soon. Keep the bulblets by themselves and in spring sow them out of doors in rows as one would peas. If the hard dark colored skin on these bulblets is peeled off or partly off, the little bulbs will make a much bigger and surer growth in summer than if be left untouched, but this peeling had better not be done till within two to three weeks before planting. Gladiolus—aside from *G. Colvillei*—are now largely grown as greenhouse plants for spring and early summer flowers. Try a few. Take well ripened bulbs of such varieties as Brenchleyensis, vermilion-scarlet; Shakespeare, creamy white and carmine striped; Eugene Scribe, rose and deep rose, variegated; Napoleon III, scarlet; John Bull, whitish; and Romulus, dark red with white blotch on lower petals. Pot them about as you would hyacinths and set them under the bench of the greenhouse but away from the hot air of the heating pipes, and keep drip away

from them till they make fair roots and begin to grow, then take them up to the light and put a stake to each pot to keep the plants from breaking down.

Pick over the tuberoses. Separate the offsets and keep the large flowering bulbs by themselves and the lesser ones in a box by themselves. They require more warmth than gladiolus.

Tigridias may be treated like gladioli, or kept a little warmer. Mice and rats will eat them, guard them from these pests.

Amorphophallus and green leaved caladiums should also be kept moderately warm, say 55° or a little over, and not too dry.

Keep montbretias quite cool, say 40° to 45°, with a little loam over them; don't keep them dust dry, for some of the kinds don't make very solid bulbs.

Hyacinthus candicans may be kept quite dry, giving it the same care as gladiolus, so may summer-blooming oxalis.

GLADIOLUS.

In field culture, where contact with the manure cannot be easily avoided as in small spaded plots, the gladiolus does better following a previous crop, for which the ground had been fertilized with stable manure. But no plant is benefited by the application of more food than it can consume, if this food, however, is in the proper condition it will not use more, nor be injured by it. Excessive moisture should be provided against by drainage.

The gladiolus of to-day is different from the gladiolus of 15 or 16 years ago, except the section *Gandavensis*, which has been inbred for years, resulting in so serious an impairment of its vitality that many varieties will not produce characteristic flowers for two successive seasons. This excessive incrossing is the cause of its degeneration, which is amply proven by contrast with varieties having the least infusion of new blood from species. During the past season my greatest failure was in *Gandavensis*, growing on a sandy loam, manured f r the previous season's crop, (new hybrids here grew over six feet high). My greatest success in the same section, was in a block where the water stood in the drills at planting time, and the soil was never dry. Well fertilized moist soil, with plenty of atmospheric moisture, will produce results obtainable under no other conditions.

Simcoe, Ontario. H. H. GOFF.

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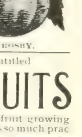

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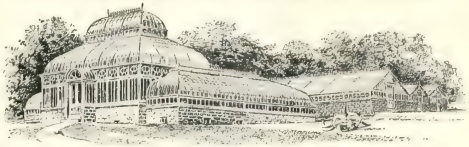

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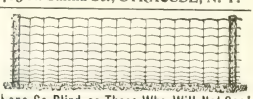

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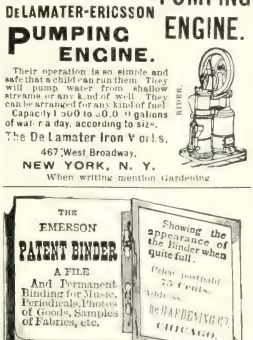

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GARDENING

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CLEMATIS PANICULATA AT THE CEDARS, WELLESLEY, MASS

CLEMATIS PANICULATA.

This is one of the most desirable, useful, beautiful and hardy of our garden vines, and it is long lived and easy to grow and manage. Our illustration of it is engraved from a photograph taken last September and kindly sent to us by Mr. Henry S. Hunnewell, The Cedars, Wellesley, Mass. Mr. Hunnewell writes: "It seems to be one of the very best of vines to grow near the house, as it is so free from insects, and remains neat looking throughout the year, in fact, the seed vessels, after blooming, are rather ornamental."

Look at that mass of vine, foliage and flowers, and the position about the house

that it occupies. What other vine that you know could fill that place so aptly, so fully, or so beautifully? Just as luxuriant a growth and as great a profusion of blossoms are within the reach of every one of us who cares to plant this clematis and give it generous treatment. If you have not got it, as soon as the spring opens get a plant or two, and set them out and give them good rich soil and plenty ofit. As a rule right up against the walls of the residence the filling in has been sand, gravel, brickbats, etc., from the cellar when it was dug and rubbish from the builders with loam enough over it to raise grass on; now you cannot expect that vines or other plants will luxuriate in such dry and impoverished dirt as that is; dig that out and fill up with good surface loam. It needn't be fatted earth surfeited with manure, surface earth from a field, peeling from the roadside or the like will do very well; if it is soddy, chop it up a little with the spade and pack it down with the feet on the top, for planting the roots in the earth should be fine.

This clematis is a Japanese plant, and we find that not only it but plants in general from that country like shelter from cold sweeping winds, at the same time it will grow on any side of the house or any exposure in the garden providing there is some shelter given it from the north or northwest sweep by neighboring trees, buildings, fences, or undulations of the land. In common with other plants from the country in which it is indigenous to have it luxuriant in summer it should have abundant moisture. The open garden as a rule is moist enough; about the house is apt to be rather dry unless a little extra water is given in the way of the washing from the veranda floor or help from the faucet or watering pot.

The plant is hardy enough. Here about New York the old wood of mature vines, 10 or 12 feet high, lives perfectly well, but we prefer cutting it back every year to near the bottom so as to keep it well filled up near the ground. This won't detract from its height at all for strong plants will throw out young shoots that will grow fifteen feet long in a season and bloom beautifully to the top. In localities where there is any fear of its hardiness the plant may be cut clean over at the ground in the fall and mulched heavily with tree leaves or litter as we would any herbaceous plant, then uncovered in spring and allowed to grow, when it will rush up as luxuriantly as the plant you see in the picture and bloom as full. It is simply a question of treatment. A position for it against the dwelling house isn't imperative at all, it will grow up against any out building just as well if it has a sheet of chicken wire netting, trellis or other support to climb upon, over any fence, up a pole or pillar, over bushes or stumps or anywhere else we wish; or failing to get any upright support, it will spread out over the ground and bloom beautifully too, just as we often find our wild clematis doing on the fringe of woods and over embankments.

This clematis may be increased from division of the old root clumps, but this is not to be recommended, from layers of the shoots, by grafting on the roots of other species, notably *C. Stans*, but best and quickest of all from seed. But the seed is slow to germinate. Whenever old plants are grown and mature seed and this seed falls on the ground, the following summer young seedlings are apt to appear in quantity, now these natural seedlings are just as good as their parents, and if transplanted and tended carefully they will bloom the second year and the following season become strong plants.

The Flower Garden.

THE MARGUERITE CENTAUREA

described on page 147 is not new with us. Two years ago we got seeds of it from Vaughan's seed store, and sowed them in the greenhouse early, then pricked them into flats, and from these transplanted them out of doors in April into the open ground in full sunshine. The dry heated atmosphere of this interior place proved hard upon it, and the plants started to die off early, but we saved some seed from them. We sowed these in the greenhouse last spring, potted the seedlings, and planted them out in April in ground partly shaded from the afternoon sunshine, and they grew much better than they did the previous year, but as we wanted all the seed to ripen they again gave way by the middle of July. They appear to suffer by transplanting from flats, and we will put the seedlings again in pots, and keep them cool and near the glass, then plant them out by the middle of April in partial shade and keep the ground moist. The blossoms are very beautiful and last a long time as cut flowers. I am very anxious to grow them so as to prolong their season of usefulness, and enclose a few seeds to you, hoping you may grow them and maybe help me. DANIEL K. HERR.

Lancaster, Pa.

Thank you for the seeds. Most all annuals that are raised indoors early in spring and planted out, and in fact most annuals sown very early out of doors in spring may grow and bloom very well in the early part of the season, but they are apt to succumb to drouth, heat and enervation about midsummer. There are exceptions to this rule, however, for instance globe amaranths, verbenas, salvias, celosias, French marigolds and a few others. We would suggest that you make a second sowing between the first and middle of June in a cool, somewhat shaded cold frame, prick off or pot off the seedlings, and transplant them early in June into faintly shaded moistish ground. These will probably bloom from August till frost; at least the yellow sweet sultan does so with us, and as the Marguerite centaurea is its near kin it is but reasonable to expect that it will too. We make a large second sowing of many annuals in May, and a third one in June, so as to give us a continued supply of cut flowers in late summer and fall, and we find that from these later sowings of some annuals, China asters, for example, we get more and better seed than from the early ones.

THE NEW ENGLAND ASTER

(*Aster Novæ Angliæ*).

This is one of the showiest of our wild asters, making our prairies gay in September with its bright blossoms. And how beautiful they look in their wild state. But wouldn't they look pretty in our gardens too? Yes, certainly. Lift a few of them in the fall or spring and plant them among your shrubbery or in your border of perennial plants and you will find that they improve considerably under cultivation, indeed any extra care bestowed upon them will be well paid. They are also very effective in groups on the lawn, but when grown in this way they should be pinched back just as you would pinch chrysanthemums. Don't allow them to get over two feet high and they will form a dense mass of flowers when in bloom. To make such a bed more showy gladioli should be planted amongst the asters, and if planted early they will be through flowering before the asters start. Also plant some early blooming lilies, with narcissus and crocus for spring blooming this would make the bed attractive during the whole season, and all could remain untouched, save a good mulching every year. The heavy growth of the asters if left over winter would give ample protection for the lilies and narcissus during cold weather. Naturally *Aster Novæ Angliæ* is very tall growing and if well cultivated will attain a height from 6 to 7 feet; when in a wild state it is not often found higher than 4 to 5 feet. But by attaining this height it becomes naked below, which gives it an unpleasant look when not covered by other plants, and should therefore only be used among the shrubbery or for background in the perennial border unless it is kept down by trimming. The violet and purple varieties are the ones commonly seen on our prairies; the rose colored being more rare and the white form is extremely rare.

Of late years several hybrids have been introduced that are quite an improvement on the type and should be found in every garden where perennials find a home.

The *rosea* variety seems to differ very little from our wild rose-colored variety; its flowers probably are a little larger. William Bowmann has large violet flowers. Grandiflorus is like the type but has larger flowers. Rubra (or *coccineus*) has almost red flowers and is a beautiful variety. The last three named are likewise good keepers, and they are useful as cut flowers. JAS. JENSEN.

Chicago, Ill., January 8, 1896.

CLEMATIS BREVICAUDATA.

A reader finding this clematis among the new plants mentioned in Siebrecht & Wadley's catalogue asks us what it is and what good for. We may say this is a new and desirable Japanese hardy vine and a welcome addition to our gardens. It has small, white, "fleecy" flowers not unlike those of *C. Flammula*, and borne in large pubescent cymose panicles about the end of August and into September; its leaves are ternately divided, the pinnæ being deeply and sharply cut and not unlike those of our wild virgin's bower (*C. Virginiana*). How well it may be adapted to general cultivation we know not yet, it is so new; but we have every reason to believe that it is quite hardy and has come to stay as a happy companion to *Flammula* and *paniculata*. By all means get it and try it. It came to this country first a few years ago under the erroneous name of *C. Picroti* (a different species). The specific name quoted by our correspondent, namely, "brevicordata" is wrong, *brevicaudata* is right.

VINES FOR VERANDA BOXES.

L. E. W., Gordon Park, O., writes: "Would the Cupid sweet pea do reasonably well in boxes round an east porch, inside the rail, where it is sunny and light? What vine could I grow next to the rail in the same box with the Cupid in front? The boxes are 2 feet from the floor of the porch and there is a rail with spindles 2 feet 6 inches higher which I wish to cover as a screen from the street."

Ans. The Cupid pea is too new for us to speak definitely of its behavior under

A BED OF BEGONIA SEMPERFLORENS NIVEA

different conditions, but we would hesitate to recommend it, in company with vines, for growing in a veranda box. At the same time it might do well there. Good vines to droop down from the boxes are *Vinca major*, green or variegated, German ivy, and Lobb's nasturtium; to grow upward to cover the upper rail and spindles Lobb's nasturtium, *Lophospermum scandens*, Barclay's maurandia, variegated Japanese hop vine, cobæa, and *Ipomœa paniculatà* and *I. Leari* are good. If only one vine is needed the Lobb's nasturtium will answer every purpose, it can be trained up to the upper rail and allowed to droop over it, when it will soon reach most down to the ground. But it needs good soil, lots of water, and to have the yellow leaves kept picked off. The other vines may be treated in the same way, but the maurandia being a thin wiry vine at first may need some switches, stakes or other supports till it gets up over the rails.

ELLETSON'S NEW BEGONIA.

(*B. semperflorens nivea*.)

Nearly three months ago Mr. J. Elletson, Auburn, N. Y., sent us a few of this begonia and other of his new plants for trial at Dosoris. We potted the begonias and set them in a greenhouse having a night temperature of 55° to 60°; the glass is also thinly shaded with white lead and kerosene. This little begonia is a perfect gem, of compact bushy habit, and all the time full of clusters of white flowers that project well beyond the foliage in more of a pendulous than upright way. We are in love with it, and so is everyone else who has seen it here; even Thomas Griffin, the begonia specialist, when he saw it here the other day couldn't help admiring it. It is identical in habit with *B. semperflorens rosea*, but without the stiff habit or close-set flowering nature of Vernon or the typical *semperflorens*. Mr. Elletson writes to us "It is a charming bedding plant. When we set out those seen in the picture they were four inches high, and about the first of October when the picture was taken they were 12 to 16 inches in diameter and full of floral glory. It must have plenty of water in summer if the best results are expected from it, and a mulching too will be of great value in bringing out its best feature." We have been watching for some seed pods hoping thereby to increase our stock a little faster or raise something new, but so far not a fertile flower has appeared on any of the plants.

Mr. E. writes: "The picture shows a small piece of ground planted in flowers, and is such as anyone can easily have. When the shrubs were thinned out I planted out a few decorative plants to help the summer appearance of the place. The tall shrubs at left hand of the picture are Hercules' club (*Aralia spinosa*), it is an elegant plant when in full leaf, flower and fruit, and it is quite hardy. The palms just set in for the summer consist of arecas, kentias and seaforthia; give them plenty of water and they do very nicely. The tall grass clumps are of *Eulalia Japonica* and its varieties. The lesser plants consist of borders of hardy pinks, and lots of geraniums and begonias."

GLADIOLI, HOW I WINTER THEM.

Perhaps my method of caring for gladiolus bulbs over winter, that has uniformly brought them safely through may be of some use to others, who like me, have not the ideal place, that is never too cold or too hot or too wet. I leave them in the ground till after October 1, then loosening the ground pull them and with tops on them, lay them in a shed, often standing the bulbs down in a barrel or box. In two or three weeks they are thoroughly dry, and the tops come off easily. The bulbs are then put in paper sacks about one half-peck in a parcel, and if perfectly dry, each parcel is wrapped again in newspapers, five or six thickness, and then put in baskets and hung to the joist in the cellar. They "come through" all right though the atmosphere in the cellar is frequently below freezing during the winter. I save all the bulblets, treating the large ones the same as the bulbs, and in the spring planting them, and as frequently directed in GARDENING removing the hard outer husk. The small ones (even as small as bird shot) I plant as soon as I can separate them from the parent bulb or as I gather them, in digging the larger bulbs, in a row anywhere in the garden where space can be spared, raking the place fine, sowing the bulblets as I would peas, covering them with about one inch of sand if I have it, marking the row with sticks lest the spot be forgotten. Over all I put leaves or litter, about a foot deep, and lay something to keep them from blowing away. Last winter the thermometer marked several degrees below zero, for days at a time; but my row of baby gladioli came up full and green in the spring. They need a little nursing in the spring. The litter must be *carefully* taken away, when other things begin to peep through the ground—not too soon however—and after taken away don't let the ground dry out too much; or bake in the sun and wind. When the tops are an inch high begin to mulch and add more as tops grow. I found old excelsior shavings to answer the purpose very well. I let them grow until the middle of September when I treated them as noted of the other bulbs in this article.

(REV.) J. C. BERRIEN.

Steubenville, Ohio.

VERBENAS AND LILIPUT ZINNIAS.

I have taken so much pleasure last summer in the product of seeds of the Royal Splendor verbena and Liliput zinnias obtained from A. B. Howard, Belchertown, Mass., that I feel that I am doing a good act in calling the attention of the readers of GARDENING to them. The brilliancy and purity of coloring, and the massive proportions of the verbenas were a revelation. The zinnias are pure in color, perfect in form and their diminitive size removes them from the charge of coarseness attributable to the ordinary form.

W. C. EGAN.

Trees and Shrubs.

SYMPLOCOS GRATAEGOIDES.

C. W. E. asks us what this is.

Ans. It is a desirable hardy ornamental shrub and was first sent to this country over twenty years ago by Mr. Thomas Hogg from Japan to the Parsons' nurseries, L. I. It was grown at Dosoris for a good many years under the name of *Symplocos paniculata*, but of recent years we have changed this name to the more proper one of *S. crataegoides*. It forms a bushy shrub 4 to 7 or more feet high, and has small (2 inches or a little over long), prominently veined, somewhat pubescent leaves, a wealth of dense short panicles of small white "fleecy" flowers in spring, succeeded by a heavy crop of ultramarine blue berries, about the size of small peas, in September and later. When it berries well it is a gem (see what J. T. Temple says about it in GARDENING, page 276, May 15, '93,) and we have seen it when it was a mass of these brilliantly blue fruits, and then again we have seen it when it didn't bear as many as we wanted it to carry. It hasn't the vigor, the body, the fullness, the foliage, the dash desired in an everybody's shrub, so it is always likely to remain comparatively rare in gardens, but don't omit it from yours, it's too good a thing to miss. This is to be regretted, for it is worth having. "The Dictionary of Gardening" says it is a "greenhouse shrub or tree." We know it to be perfectly hardy at Boston.

UNTIMELY TRIMMING OF SHRUBS.

Within the past week I saw a place where a local, so-called gardener, was hired to come in and trim up the shrubs. He did so without fear or favor. Anything and everything went through the same process, and no fault can be found with his eye for symmetry, but what a sad disappointment is in store for the owner, when next spring he misses his blooms of the lilac, snow ball and various other shrubs that bloom on the growth of prior years. Every flower bud that protruded beyond the limit his eye set as the outline was cut away and thus the beauty of one season was destroyed. Those who do not know when to trim can follow the safe rule of trimming immediately after flowering. The majority of our shrubs bloom in the spring or early summer and from then until their winter's rest, are energetically engaged in producing the flower buds that will unfold the following season. The althea (*Hibiscus Syriacus*) and *Hydrangea paniculata grandiflora*, are two shrubs that bloom quite late in the season, and it is well to wait until spring before cutting them back. These two shrubs require more severe cutting back to produce good blooms, than any other in the limit of my experience [The Chinese tamarix too.—ED.] As a rule the only trimming necessary for shrubs in general is to cut out the dead wood, which can be done at any time, and keeping the shrub in form or within bounds. Some, however, like *Exochorda grandiflora* require to be well headed in, especially when young, in order to keep it dense and shapely.

W. C. EGAN.

PLANTING A PRIVET HEDGE.

I want to plant a hedge of California privet. The soil of my lot is very heavy, clayey and rather damp. Is such soil suitable for privet? What treatment should be given the soil? What treatment should be given the plants after setting out, in the way of manure, mulching, etc.? When is the best time for setting out, and how near to each other should the plants be set. C. H. V.

Chevy Chase, Md.

Wait till the ground is mellow and dry enough in spring to plow it without leaving it hard and lumpy, then plow it deep and fine. If you can get any old black or peaty swamp muck, such as the cleanings from a wood pond, spread this several inches deep and a yard or more wide along the row for the hedge, and plow it in; this is to keep the clay open for the roots to penetrate into it, and have the row raised a little above the ordinary land level so as to keep the crowns of the privet dry. Get two to three year old healthy stock and cut it back to within a foot of the root; open the furrow deep and even with the plow and set the plants about 16 or 18 inches apart. Some folks plant even closer than this, but too close isn't good for the plants and if the hedge were to be used for stock as well as ornament we'd run a string or two of wire along its center to add to its strength. A good mulching of littery manure reaching to two feet out from the plants on each side will be of great service in keeping the earth cool and mellow in summer and preventing it from cracking. Plant as soon as the ground is ready in spring, but better be a little late than break up the earth while it is wet and pasty.

FORSYTHIA FORTUNEI.—Do you know what a valuable plant this is when trained as a climber? Any little pains will train it as such and it is perfectly hardy and always blooms finely at the proper time, when it is very attractive and showy. I have a plant 12 or 15 feet high and consider it my choice. *F. viridissima* however, is no good, the plant is hardy enough, but the bloom buds almost invariably get winter killed. After trying it some 30 or 40 years I have dug it out and thrown it away. GEO. J. CONOVER.

Geneva, N. Y.

Roses.

TRANSPLANTING OLD ROSE BUSHES.—W. S. S., Boston, writes: "I have a bed containing about fifty rose bushes, six to ten years old, which I wish to transplant; can this be done with safety? If so, would early spring as soon as the frost is out of the ground be the best time?" *Ans.* Yes, they can be transplanted with tolerable safety. About the end of March or first of April, after severe frost is past, cut the plants well back, even the old wood if need be, so that the stems or stumps maybe are no more than one to two feet high: then when the frost has left the ground and the soil is mellow dig up the bushes, carefully preserving all the roots possible, and transplant at once. Be sure the young roots don't get dry between lifting and planting. Don't look for many if any flowers the first summer, be content with a growth of wood for next year's work.

MOSELLA is a new Tea-Polyantha rose raised by Lambert & Reiter of Germany, the firm with whom Kaiserin Augusta Victoria originated. It is a seedling of Mignonette (a Polyantha rose) × with Madame Falcot (a Tea rose). The Mosella will be our Clothilde Soupert in yellow. I got one last spring and planted it in the yard of my home in New York, and it has bloomed pretty near all the time, just like the Clothilde Soupert in this respect. It is still standing outside and when I saw it last Sunday it looked all right and will undoubtedly stand our winter. J. L. SCHILLER.

January 24, 1896.

The Greenhouse.

AZALEAS.

Please tell us something about the proper treatment of these, and how to propagate them. Do you give them much sun? Do you give them much water? What is the best temperature for them? How do you propagate them? How often should kerosene emulsion be used for red spider? Should the plant be washed with water, soon after the emulsion has been used? What is the treatment after they have done blooming?

Rock Island, Ill. W. H. M.

We referred your inquiry to Mr. James Dean of Bay Ridge, N. Y., the largest grower and importer of azaleas for market in the country, and he kindly answers as follows:

Give sunshine at all times, it produces a sturdier plant, which flowers much better than one grown in the shade. Use water freely when the plants are in flower and when they are making their growth, not forgetting to syringe. Hold the temperature during the winter at from 40° to 45°, moving those plants to a temperature of 55° to 60° that are wanted for flower, they will come into bloom in from six to eight weeks after being introduced to the extra warmth according to variety. They can be easily propagated from cuttings, the wood to be about half ripe, in a gentle bottom heat. They can also be grown from layers. But I should advise grafting for most of the varieties, as many are very glow of growth on their own roots.

In place of the kerosene emulsion use lemon oil according to the directions that accompany it; one application will do away with the spider. Dip the plant in it and let it stand without syringing for an hour or two, then syringe it with clean water. After blooming the plants should be trimmed into shape, all the seed pods removed, repotted if necessary in a compost of loam, leaf mould and sand in about equal parts in one size larger pot, placed into a temperature of at least 60° and given plenty of water while they are making their growth When done growing they can be gradually given a lower temperature and less water, but under no consideration must the azalea be allowed to dry out. JAMES DEAN.

HEATING A GREENHOUSE.

I am building two greenhouses. No. 1 is even span, 60 feet long by 20 feet wide, and runs north and south; I wish to maintain a minimum night temperature of 50° in it. No 2 is a three-quarter span 40 feet long by 20 feet wide, running east and west, long span to the south; in it I desire to maintain a minimum night temperature of 60°. Minimum outdoor temperature here is about 10° below zero. How many lines of 2-inch pipe (heating

THE NEW FERN-HOUSE, LINCOLN PARK, CHICAGO.

by hot water) shall I need in each house to maintain these temperatures?

Michigan. C. W. R.

For house No. 1 use six lines of 2-inch pipe on each side, and two lines of the same on each end. For house No. 2 have eight lines of 2-inch pipes on each side, and two lines of the same at each end. We have assumed that the house 60x20 will contain approximately 1,500 square feet of glass. This would call for 500 square feet of radiating surface, for a temperature of 50° at night, with mercury outside at 10° below zero, and as it requires 160 feet of 2-inch pipe to make 100 square feet of radiating surface you would require about 800 feet of 2-inch pipe for that house. The house 40x20 feet would contain about 1,000 square feet of glass, requiring for a temperature of 60°, with mercury outside at 10° below zero, 400 square feet of radiating surface, or 640 feet of 2-inch pipe. A better control of temperature may be had by placing a portion of the pipe under the center bench instead of on the sides only.

CRINUM KIRKII.

M. W. R., Iowa City, asks: "Why doesn't my *Crinum Kirkii* bloom? It has been planted out in permanent bed in greenhouse three years in rich soil."

Ans. Give it a good rest. Dig it up and with what earth may stick to it, and let it stay quite dry in a room or cellar, away from frost, till May, then plant it out in the open ground and leave it there till the first frost of autumn kills the leaves, then lift the bulb, cut off the tops and roots, and winter it just as you would gladiolus bulbs. Plant it out again the following spring. I don't think it will bloom this year because the rest it will get between now and spring will be so short, and probably no embryo buds have been formed. E. S. MILLER.

Long Island.

A GREENHOUSE FERNERY.

We all love and enjoy ferns, be it out of doors, in the window or greenhouse; in fact when we go a-strolling through the woods we often dig up clumps of fern roots and bring them home to plant in our gardens; and of all the wild plants chosen by summer visitors to our mountain resorts, to bring back home in their trunks, perhaps there are more ferns than anything else. An artificial out of doors fernery if intelligently constructed and planted is always a spot of beauty, not only because of the ferns alone but also on account of the numerous little wild flowering plants—orchids, wood anemones, hepatica, violets, twin flower, bunch berry, oxalis, columbine and others, that love to associate with them. But out of doors we cannot aim at the imposing grandeur of the majestic ferneries of New Zealand and other parts where the tree ferns are at home. To enjoy these in their beauty and perfection we must grow them in greenhouses, and to show them off most effectively plant them out in natural style. Of course this requires a spacious structure, but it is wonderful what a pleasing effect can be had in a glass house of moderate size providing it affords head room enough for the spread of one or two of the tree fern tops. Our illustration, engraved from a photograph taken in the new fern house at Lincoln Park, Chicago, gives a good idea of the arrangement and planting of such a house. The heating pipes are arranged next the wall and hidden from sight by an uneven rocky bank full of pockets of earth and planted with ferns and mosses. The whole interior has a rustic adornment, the paths wind among and between the rocky edgings and embankments, and all under the canopy of the broad fronded tree fern tops; after they are longer planted they will become more expanded. A little waterfall among the rocks and emptying into a little pool is also provided, pellucid filmy ferns inhabiting its course down the face of the rocks, and fish in variety the pondlet at the bottom.

GREENHOUSE PLANTS IN BLOOM.

Ipomœa Briggsii is a new plant and described in the catalogues as a good winter bloomer. It has been grown by John Saul for two years and each winter it has been covered with flowers, which for beauty surpass all the other species in cultivation. There is now a plant of it in one of the conservatories of the White House on which I recently counted over 400 flowers open at one time, the flowers are of a rich shade of crimson, about two inches in diameter, and produced in bunches from the axils of the leaves. We have not yet given it a trial out of doors, but intend doing so the coming season.

Magnolia fuscata is a small evergreen, somewhat tender Chinese species which is grown principally on account of its deliciously perfumed flowers; it forms quite a handsome bush. It is propagated largely by some of the southern nurserymen.

It is wonderful what a rich display can be got from some of the large leaved early flowering hardy saxifrages indoors at this time. They are hardy in most parts of the country, forming strong clumps in fairly good ground within a short time. Mr. Pfister of the White House uses them to much advantage in the decoration of the conservatories there. Pieces of the plants which are likely to flower are lifted in the fall and put in 5 or 6-inch pots and merely stored in a frame, they are ready to burst into flower by the middle of January. *S. cordifolia*, *S. Stracheyi* and *S. crassifolia* are the most suitable kinds. [Try *S. ligulata* and its variety *ciliata* too. Neither is reliably hardy at Dosoris, but they should be at Washington. They bloom very freely and have a more refined look about them than *crassifolia* has.—ED.]

Echeveria metellica is a most accommodating plant; we use it in summer planted out among cactuses, houseleeks, stonecrops and the like, and if we lift and pot it in the fall it will bear spikes of beautiful flowers nearly all winter. It succeeds well in a dwelling house. In propagating simply cut the top off an old plant and put the cutting in a pot with nothing but a little moss covering the bottom, stand it anywhere in the greenhouse or in a sunny window and in a few weeks, without watering or other attention, it will put out slender roots. When about half an inch in length put in a pot according to the size of the cutting, any ordinary open soil will do, and give a slight watering merely to settle the soil. If it is desired to increase the number of plants keep the old stumps and they will give out little growths which are easily rooted in sand, keep them on the dry side.

Plumbago rosea is as serviceable in the winter months in the greenhouse as its sister species, *P. capensis*, is in summer as a bedder. The flowers of *rosea* are arranged in long spikes, the color is a soft shade of red. Cuttings should be rooted in spring and growing on during summer.

Justicia calycotricha is at the present time the most showy of the yellow flowered plants in bloom in the greenhouse; the florets are long and narrow, and great numbers of them form a spike at the ends of the shoots. Most people have a difficulty in raising young plants of this species, as the growths they make are very small. I find it best to take the cuttings just after the plants are done blooming, simply nip the flowers off and take the wood immediately below them; this will be found to root all right.

Washington, D. C. G. W. C.

GREENHOUSE PLANTS IN BLOOM.

The following plants have come into bloom lately with us: *Datura aborea*, a plant of very easy culture with large white trumpet shaped flowers. *Veltheimia viridifolia*, a pretty little bulbous plant bearing spikes of light rose colored flowers; the bulbs rest in summer. *Erica persoluta alba*, a very free flowering and useful heath for cut flowers. It is one of the few heaths that do well in this climate. Cuttings rooted in January or February from parts of the wood without flowers, in pans of sand under a bell glass, in a shady place, will make nice little plants in a year's time, and fine plants in two years. They require a cool even temperature, and partial shade during the summer months. *Metrosideros floribunda*, a flowering shrub with bright scarlet flowers in bunches shaped like a bottle brush. Olea fragrans, with small yellowish white axillary flowers of a very agreeable odor. *Vriesia splendens*, a very handsome bromeliad with zebra-striped leaves and small yellow flowers with fiery purple bracts which last a very long time. *Chevalleria* (*Echmea*) *Veitchii*, a bromeliad which lasts a year in bloom—or rather the persistent flower bracts—the flowers open successively, and are of a bright rose color. *Billbergia Liboniana*, with bright red sepals. The last three are potted in orchid potting material, two-thirds peat fibre and one-third sphagnum moss. The following also do best potted in this material and suspended in orchid baskets. The beautiful variegated pineapple, *Tillandsia acaulis zebrina*; *Nidularium Binotii*, and *N. fulgens*; *Hechtea Ghriesbreghtii*, a very odd basket plant with spiny recurving leaves; and *Pepinea aphelandraeflora*, a species with small yellowish flowers. These all require the temperature of the stove or warm greenhouse and, excepting the tillandsia, the sphagnum should be kept in a growing state on the surface of the baskets. Freesias that come into bloom in the warm house should be removed to a cool one, where they will last much longer. WM. FITZWILLIAM.

Baronald, N. J.

GREENHOUSE CONSTRUCTION AND HEATING.

1. What are the advantages in building a greenhouse with short span to the south?

2. In a greenhouse 50 feet long by 18 feet wide how many rows of inch pipe will be necessary to maintain azalea and carnation temperature (50°)? In this state the mercury occasionally falls to 20° below zero. With a good steam apparatus how many tons of coal would you estimate to maintain above temperature?

Maine. F. C. C.

Ans. 1. It is argued that more light and heat can be secured in this way than in the case of an even span. It is used a good deal by carnation growers; at Queens, a few miles from Dosoris, Mr. C. W. Ward has an extensive greenhouse establishment built in this style, and likes it, and as he grows as fine carnations as come into the New York market there is no doubt of its efficiency. For a miscellaneous collection of plants, however, or for tall plants of any kind, or for roses we would not use it, but would stick to the even span or hip roof with long side to the south.

We learn from Prof. Taft's work on greenhouse construction it is common practice to figure one square foot of steam radiating surface for every six square feet of glass for a temperature of 50° at night during zero weather, with a pressure of from two to five pounds. We would therefore advise for a house 50x18, which will contain, if constructed in the ordinary way, about 1,200 square feet of glass, two 1½-inch flow pipes and ten 1-inch return ones, making a total of 222 square feet of surface. Regarding the quantity of coal such an apparatus would consume, we find that the Mich. Experiment Station at Lansing consumed 114 pounds of coal per day for heating a house 50x20 to a temperature of 50° with steam. We think it well to advise you against using steam for so small a plant, as it will necessitate firing at night.

COONTIE (*Zamia integrifolia*).—C. K., Wormleysburg, Pa., writes: "This plant was sent to me from the south two years ago. Every winter it loses its leaves, but on being planted out in the spring in the garden puts forth new leaves and fills me with hope that I may succeed with it, but alas! at the present time it has again lost its leaves, and looks like an old beet. It is kept in a room heated with hot water at night. What shall I do with it?" *Ans.* Let it alone for this winter, but give water enough to keep the soil from getting too dry. Next April repot it into a clean well drained pot, using sandy loam and pack the earth very firmly. In May don't plant it out in the garden, but plunge it out, that is, lower the pot to over the brim into the ground, and let it stay there all summer. At taking-in time lift the pot out of the ground without disturbing the plant, wash the pot and take it indoors and treat it as before. Don't overpot it. It won't grow as luxuriantly in summer as it did when planted out, but when lifted it should hold its leaves in winter.

ASPARAGUS SPRENGERI.

Our illustration shows some feathery sprays of this beautiful greenhouse vine which we described in the last issue of GARDENING, page 149. These ornamental species of asparagus are very well worth growing, not only for greenhouse and window decoration, but for cutting; when cut they last better than any kinds of ferns, and few green sprays have a more airy and elegant effect either when used alone or as a relief among cut flowers.

ZAMIA.—A Michigan reader writes: "What is this? I find it in — —— catalogue, but in no other that I have. Is it of any practical value?" *Ans.* The plant meant is probably *Zamia integrifolia*, the coontie of southern Florida. Little stumps are dug up in the low grounds of Florida and shipped north, where they are potted and cared for in greenhouses till they throw up young leaves. Florida arrow-root is obtained from its stem. There are many species of zamia, and all are indigenous in tropical America, extending into the West Indies, and one species—the one you refer to—reaches into the southern United States. They belong to the cycas family of plants and are grown for their odd and decorative forms, just as we do in the case of the common *Cycas revoluta*.

BEGONIAS NOT THRIVING.—In the issue of January 15, page 129, a correspondent speaks of his begonias losing their leaves, notwithstanding his efforts to the contrary. I had a similar experience seven years ago. The causes were thrips and begonia rust. I fumigated for the thrips and was agreeably surprised to find it conquered the rust also. If the leaves of your correspondent's begonias are rusty I would advise him to fumigate three times a week, gently, for a month.

W. FITZWILLIAM.

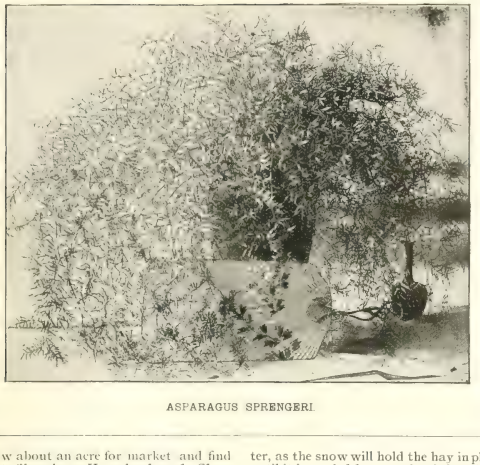
FOR HEATING A SMALL GREENHOUSE.—Apropos of your note, page 138, I would suggest that you use a Rochester heater, then your glass won't crack, for there is no glass, no smell of smoke and no trouble with it, and to run it costs only one cent an hour. I have one, and it is a comfort in our home. E. S. MILLER.

Floral Park, N. Y.

The Fruit Garden.

STRAWBERRIES.

No garden, however small, should be without its bed of strawberries. There are so many fine varieties that one can hardly make a mistake in his selection. I



ASPARAGUS SPRENGERI.

grow about an acre for market and find that Sharpless, Haverland and Chas. Downing are good varieties, although the last named is somewhat smaller than an up-to-date strawberry should be. Still the grower is always sure of a moderate crop at least from this variety, which is more than can be said for some other sorts. I have also this year a bed of Greenville and Dayton for trial.

My method of cultivation is simple enough, and has always given good results when the season was favorable. In the spring, as early as I can, I select the piece of ground for the new bed and broadcast as much good manure on it as can be covered with the plow. Having turned the manure under I go over the bed once with the harrow. Next apply a good chemical manure broadcast at the rate of 1,200 or 1,500 pounds to the acre, and it should be as rich as possible in potash. I am of the opinion that potash gives a firmer berry than can be grown without its use. When the manure has been distributed I harrow again and set the lines three feet apart. The plants are set one foot asunder in the rows, and in planting make them as firm in the soil as possible. I plant the rows three feet apart because cultivation must be done as much as possible with horse and cultivator. If I were planting a bed in the garden for family use I would plant at two feet between the rows, as the spade would be used in that case instead of the cultivator. Keep all runners cut off, as they weaken the plants. In cultivating I use first a small cabbage plow with no mold board which can be run close to the rows if they have been planted straight. In a couple of weeks, or sooner if the weeds start, follow with the cultivator and so on alternately. About the end of July or the beginning of August I allow a few runners to root, so as to make what is termed a "matted row" about 10 inches wide. When freezing weather comes I topdress the rows with manure, doing it when the ground is frozen to avoid injury to the plants. When this has been done give a mulch of salt hay, and if this can be put on just before a snow storm it will be all the better, as the snow will hold the hay in place until it is settled down and safe from high winds. When growth begins the following spring draw the mulching between the rows and push it under and between the plants to keep the fruit clean. I am not a believer in spring cultivation of strawberries. If any large weeds make their appearance pull them out. When the crop has been gathered I rake up the mulching and start the plow, cutting off the edges of the rows as I go. A good fertilizer liberally applied at this time between the rows will help to give the plants a fresh start and prepare them for doing service another year, which should be all that is expected from that bed. I have said nothing about the hoe. Of course it is in constant use in a strawberry "patch." P. F.

Market Gardener, Westchester Co., N. Y.

FIGS IN A COLD GRAPERY.

Having a cold grapery 40 feet long by 15 feet wide, a lean-to structure with southern exposure, in which I grow the Hamburgh, Gros Colman and Madresfield Court varieties of grapes can I grow some figs on the back wall inside the house with the grapes by preparing a bed or border along the wall and laying the plants down every winter and protecting the same as I do the grapes. If so, what varieties of figs do you recommend for that purpose? J. L.

Milford, Pa.

You can grow figs splendidly in such a grapery provided they are not too much shaded in summer; if the shade is heavy move them to the end of the vinery where they can get more light. Bury them in winter as you suggest, or lay them down and cover them with mats or straw. Fig trees are fairly hardy under such circumstances; in fact when grown outside altogether and buried in winter as we do raspberry canes or grape vines they live perfectly and bear finely in the open air in summer. White Marseilles and Brown Turkey are fine large-fruited, easily grown sorts, either for indoor or outside cultivation. Don't give them very much root room, and pack the loam solidly about the roots.

SPRAYING FRUIT TREES IN HEN YARD.

If the orchard is used for the hen yard, how long after spraying the trees would it be best to wait before allowing the hens their liberty. F. C. C.

Bath, Me.

If Bordeaux mixture alone is used, there will be no danger in putting hens in at once; and even if Paris green is used, there would probably be no danger. Experiments have been made to show that stock turned in orchards, immediately after they were very thoroughly sprayed, suffered no injury. Much will depend upon the way in which the spraying is done. An orchard can be so sprayed that the grass will be very little wet, but if the grass is pretty thoroughly covered with the spray, I should certainly wait a few days before turning in the hens; in fact, it is always safer to do this anyhow. Some remarks upon this question will be found in Lodeman's new book on the "Spraying of Plants." L. H. Bailey.

Cornell University.

BERRY GROWING.

Berry growing, like market gardening, requires the greatest concentration of good soil, labor and thought. Too much land is the bane of most fruit growing as well as farming. Success would be more certain if acreage were divided and fertility, preparation and cultivation increased. Intensified gardening and concentration of energy are the diamond drills that bore out success. Take counsel from books, papers and practical growers, but let it be tempered with your own best judgment and experience. Actual knowledge and practical experience should go hand in hand. Let the beginner commence moderately, and go slow. Do only what can be well done. Nothing but the best product will pay. Use a limited variety of best plants, producing large, firm, attractive fruit. Have note book ready and make a complete record of all facts and dates for future reference. M. A. Thayer.

Sparta, Wis.

BLACKBERRIES—STRAWBERRIES.

A Michigan reader asks about the Eldorado and Minniwaski blackberries; also the best all-round late strawberry.

I cannot speak of Minniwaski and Eldorado blackberry from experience. We have not fruited them, but I understand they are good for home use or near market, but too soft for long shipment. The Briton I believe is superior to all others. The best late strawberry is Parker Earle (s), Gandy(s) not prolific, and Eureka(p). The Earle requires very rich ground.

Sparta, Wis. M. A. Thayer.

The Japan Quince fruit makes excellent jelly, it has a distinct flavor of its own. It fruits abundantly on Long Island and elsewhere in the country, but it isn't a shrub that is ever likely to be cultivated for its fruit alone. What a difference there is in size and form between the fruits of some of the plants, most as much difference as there is in tint of their blossoms.

You will materially assist Gardening by mentioning it every time you write an advertiser in its columns.

GARDENING.

WILLIAM FALCONER, Editor.

PUBLISHED THE 1ST AND 15TH OF EACH MONTH
—BY—
THE GARDENING COMPANY,
Monon Building, CHICAGO.

Subscription Price, $2.00 a Year—24 Numbers. Advertising rates on application.

Entered at Chicago postoffice as second-class matter.

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All communications relating to subscriptions, advertisements and other business matters should be addressed to The Gardening Company, Monon Building, Chicago, and all matters pertaining to the editorial department of the paper should be addressed to the Editor of GARDENING, Glen Cove, N. Y.

GARDENING is gotten up for its readers and in their interest, and it behooves you, one and all, to make it interesting. If it does not exactly suit your case, please write and tell us what you want. It is our desire to help you.

ASK ANY QUESTIONS you please about plants, flowers, fruits, vegetables or other practical gardening matters. We will take pleasure in answering them.

SEND US NOTES of your experience in gardening in any line; tell us of your successes that others may be enlightened and encouraged, and of your failures, perhaps we can help you.

SEND US PHOTOGRAPHS OR SKETCHES of your flowers, gardens, greenhouses, fruits, vegetables, or horticultural appliances that we may have them engraved for GARDENING.

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EULALIA GRACILLIMA of the catalogues is properly *Miscanthus sinensis* and when it has a white midrib of considerable prominence, of it is the variety *univittatus*; as its name infers it is a native of China.

THE CATALOGUES now begin to pour in upon us, and right welcome they are; they are the pulse of horticulture. Everything that is new, interesting and desirable in their lines is noted in these lists. They are an emphatic reminder that spring will soon be here and that we must prepare for it by getting our flower and vegetable seeds, fruit trees and vines and berry bushes, roses and ornamental shrubbery, and some window and greenhouse plants. These catalogues cost you only one cent each, that is, a postal card asking for a catalogue and addressed to the seedsman or nurserymen will bring it to you. Send them.

ABOUT BEES.—A. D. C., Grenada, Miss. writes: "Please give us some articles on the management of bees, remembering that we do not know even the a-b-c of the business." We have a few hives at Dosoris, but candidly, must admit that we are far from experts in bee management. You should send to the publisher of GARDENING at our Chicago office for "Bees and Honey," price $1; Quinby's New Bee Keeping, price $1.50; or Root's ABC of Bee Culture, price $1.25, all excellent works on this subject.

WITH A LARGE GRAIN OF SALT.—Mr. Alfred Outram, who made several visits to this country as a drummer for a London nursery firm, in a lecture on "The Progress of Horticul ure in the United States" given before the Devon and Exeter Gardeners' Society in England, according to the *Gardeners' Magazine*, told his audience "Though many undoubtedly good things had come from horticultural America, a rather large grain of salt had to be taken with descriptions of their introductions." This is a genuine case of reciprocity.

HOME-MADE MUSHROOM SPAWN.—In last issue of GARDENING, page 156, William Forbes, Riverside, R. I., advertises a mushroom spawn of his own manufacture. We are glad of this, for there is no reason why the home-made article shouldn't be as good as any imported from foreign lands But we have proof of the potency of Mr. Forbes' spawn. Some years ago the Farquhar Brothers, seedsmen, Boston, sent us a sample of Mr. Forbes' spawn for trial; we planted it and found it full of life, quick and very prolific, giving us excellent mushrooms. The only trouble with the home-made article so far as we have seen it is that the bricks are not so smooth and of even size as the English bricks, hence not so attractive to the public eye, but this is no fault at all in the eye of experts who care nothing for looks but all for life, freshness and potency.

NOVELTIES.—All progressive nurserymen, seedsmen and florists use their utmost endeavors every year to get up a fair list of new plants or novelties, these may be new species, new varieties or improved strains of old varieties. The public demand this. Take flower seeds for instance. When we get hold of a catalogue about the first thing we look for is the novelties; if it has none, we conclude he is a pretty backward seedsman and we soon transfer our attention to the lists of more enterprising firms. The goodness or poorness of a novelty has got to be tested and it is soon enough for us to speak evil of them when we have found, by actual experiment, that they are worthless; take nothing for granted, test the things before you give a definite opinion of them. At Dosoris we test most of the novelties offered each year and a good many of them a year or two before they are catalogued and find it exceedingly interesting work.

FORTUNES IN CELERY.—A correspondent of an agricultural contemporary grew 5000 celery plants in four square rods of land and sold them at 2½ to 5 cents a bunch, realizing over $8 for them. And he tells us "something like 85,000 plants per acre can be grown in this way, and at the regular wholesale price of 2½ cents, would amount to over $8,000." And still the farmers call out that "farming don't pay," and truck gardeners declare they're barely making a living. Why, what's the matter with them? At that rate a gold mine in Venezuela, or a diamond digging in South Africa is poor property compared to a celery farm. Now the fact of the matter is no man is making $2,000 an acre from celery, and no amount of argument, or figures, or theoretical talk or writing will convince us that it can be done. No, no, it will take proof of actual, accomplished results by the acre to inflate our hardened heart, our hair has not turned gray, and our head bald growing vegetables to swallow a $2,000 an acre gulp of any outdoor vegetable crop. But there is no need of being envious, those who tell us how to obtain these wonderful profits never get them themselves.

MORE VEGETABLE MATTER.—C. D. J., a grower of vegetables for market. Jacksonville, Ill., writes: "Your answers on vegetables are always to the point; I wish all of the paper, or half of it, were devoted to vegetables." Thank you. At Dosoris we grow a larger assortment of vegetables than is grown on any other place we know of outside of a trial ground, and to meet a large and very positive demand; it isn't a matter of fun or indifference with us—if they grow well, all right; if they don't, then there is nothing amiss at all—it is imperative, earnest work on our part. The quality must be A1, and the supply continuous. Writing from such a field is how we can talk pointedly enough to meet the approval of even a market gardener. As regards giving more space to vegetables, we fear we cannot. We try to cover the whole field of useful information in amateur gardening, delving a little deeper sometimes, as the pressure bears on it, and one heading than under another. But every question asked, no matter under what heading it may be, is answered to the best of our ability, and when we are crowded in the paper, this is done by mail. We don't give you snips of answers either; if you ask a question we take it for granted that you want a full and intelligible reply, and it is our mission to serve you.

A PRIVATE GARDENER is a man practically conversant with every detail of gardening, such as fruit and vegetable growing, outdoor decorative and greenhouse gardening, and he should also have a fair knowledge of farming and stock. Now our young men cannot learn all this in a commercial florists' establishment, and it is a pity that such places have so great a fascination for those who intend following the business of private gardener. Gentlemen seeking gardeners often stipulate against the florist-trained men, and all because these gardeners lack in a knowledge of the detail required about a private garden. There is a great deal in this, and we would strongly urge young men training as gardeners that all the essentials of success are not centered inside of a greenhouse. It is very important to know and be able to grow orchids and all seasonable, useful and desirable plants, and so it is too to be able to keep up a full and unbroken line of young vegetables the whole year round. The competent gardener can do this with as much certainty as the florist can grow Bride or American Beauty roses. He should be able to provide a full supply of the best of fruit in its season, and fruit and vegetables from greenhouses at any season; he should also be able to maintain an uninterrupted supply of outdoor flowers from snow in spring till snow in fall, not only for garden decoration, but in quantity for cut flowers, and not from patches in the field as the florist sets out his carnations and gladioli, but from

plants in the garden set out with a view to garden decoration as well as to a cut flower supply. He should know trees and shrubs intimately and how to arrange them tastefully and effectively both for their own good and the beauty of the garden, and he should be more familiar with hardy plants than with bedding plants. Many gardeners look upon cows, horses, pigs and chickens with repugnance, as being beneath their dignity; now this is foolish; most gentlemen want a gardener who is perfectly competent to undertake the management of all things out of doors about his country home, and gardeners should educate themselves accordingly, for such places are generally the most pleasant, permanent and remunerative. A gardener to command the respect of his employer must respect himself. He must be proficient in his calling, intellectual, vigorous, earnest in his employer's interest, and without a stain, and he must keep himself and his family distinctly apart from his employer's household.

THE NEW YORK GARDENERS' SOCIETY will hold its monthly meetings at 8 p. m. of the second Saturday in each month at the Mott Memorial Hall, 64 Madison avenue, New York City. All gardeners are invited to attend, and they are also invited to bring any flowers, fruits, vegetables or other produce of their gardens to show to their neighbors, and to give information about these exhibits. Questions and information on every horticultural topic are asked for.

JOHN A. PETTIGREW, Superintendent of Parks, Milwaukee, and formerly Superintendent of Lincoln Park, Chicago, has been appointed Superintendent of Parks, Brooklyn, N. Y. We heartily congratulate the City of Churches on this appointment. Mr. Pettigrew is a clean man and has had vast experience in the management of parks; he is a man of force, application, persistence and execution, and better still his heart is in this work. Prospect Park, Brooklyn one of the most beautifully designed parks of America, has long needed such a man.

CATALOGUES.

Burpee's Farm Annual, Philadelphia, 185 pages, full, comprehensive and reliable, containing many novelties in flower, vegetable and other seeds.

Ellwanger & Barry, Mount Hope Nurseries, Rochester, N. Y., 152 pages; full, well illustrated and reliable work on trees, shrubs, roses and hardy perennials. Right up to date in everything of this kind.

Vaughan's seed store, Chicago, also 26 Barclay street, New York, 116 pages, full of all manner of flower and vegetable seeds and plants, including all the leading novelties in these branches.

A. Blanc & Co., 314 and 316 N. Eleventh street, Philadelphia. Novelties and specialties in plants, bulbs and fruits, distinctly a catalogue of novelties. Also a catalogue of foreign bulbs containing many rare things. He likewise sends us an illustrated catalogue of rare cacti; he has a very fine collection of these curious plants and knows more about them than does any other florist or nurseryman in the business. His "Hints on cacti" is a practical text book on the subject as well as a catalogue. He charges 10 cents for it from non-customers, but if you are interested in cacti at all send 10 cents to him and get the book, you won't get as much plain, practical, condensed sense about these plants in any other book that we know of.

Johnson & Stokes, 217-219 Market street, Philadelphia; garden and farm manual, 96 pages, finely illustrated from photographs, many novelties.

J. Wilkinson Elliott, 341 Sixth avenue, Pittsburg, Pa; trees, shrubs, roses, lilies, gladiolus, etc. Mr. Elliott is a buyer's agent and no matter what you need in a horticultural line he can supply it or get it for you.

Siebrecht & Wadley, 409 Fifth avenue, New York. A splendidly gotten up and illustrated catalogue of palms, orchids, ferns and all manner of greenhouse plants, hardy plants, etc.

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Frank Ford & Sons, Ravenna, Ohio; flower, vegetable and farm seeds, small fruits, etc.

Bowker Fertilizer Co., Boston and New York; the Stockbridge artificial manures; quite an instructive catalogue.

Bradley Fertilizer Co., 92 State street, Boston; artificial fertilizers for garden and farm, with testimonials of results; worth reading.

The Iowa Seed Co., Des Moines, Iowa, flower, vegetable, farm seeds, plants, 102 pages.

Alfred Bridgeman, 37 East 19th street, New York; all kinds of garden seeds; established in 1824.

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WHOLESALE CATALOGUES.

E. G. Hill & Co., Richmond, Ind.

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HOW TO PROPAGATE BITTERSWEET.

Please tell me the trick, if there is one, in propagating the bittersweet. Will its seed germinate and can it be grown from cuttings? I have planted seed several times but without results. J. B. G.

Flushing.

I find it is easily grown from seed. The seed should be planted or stratified in sand as soon as it is washed out of the pulp; if kept in sand and sown under glass during February and March it ought to come up in three or four weeks. Sow it in boxes of sandy soil, well drained, and cover it one-fourth inch in depth, and keep it moist but not too wet as the young seedlings damp off easily. If sown out of doors as soon as gathered in the autumn they come up the following spring; if the seeds are allowed to get thoroughly dry they will not come up till the second season. It is also easily propagated from root cuttings cut in lengths a couple of inches long, and put into boxes of sandy soil and treated in the same way as are other root cuttings.

JACKSON DAWSON.

Arnold Arboretum.

The Vegetable Garden.

LETTUCE IN THE GREENHOUSE.

An Illinois reader asks:

1. Can lettuces be grown well in a greenhouse?

Ans. Yes, very; in fact the finest lettuces sent to our markets in winter were grown in greenhouses, and there are villages of glass houses devoted to this crop by our market gardeners. Long, low-roofed houses are best.

2. The best temperature?

Ans. At night 45° with artificial heat, 10° to 15° higher in the day time. With sun heat, having fire heat shut off a little higher will not hurt the crop.

3. The soil and how to prepare it?

Ans. Any good rich garden soil, dry and mellow enough for working. Have lots of fine rotted manure in it.

4. How often and when to water the plants?

Ans. Never let them get dry; water in the morning and give a good watering when you do give any. If practicable ventilate rather freely after watering; you want to dry the plants and the surface of the ground before dark sets in, as a preventive of rot and downy mildew.

5. Liquid manure, how often do you spray it on or put it on the plants?

Ans. Never spray it over the plants. By making the soil rich enough before the lettuces are planted in it there will be no need of using liquid manure at all. Should you wish to give an extra stimulant get a little quick artificial like nitrate of soda and dust it very thinly between the rows; the watering will bring it down to the roots.

6. Get rid of aphis?

Ans. When the lettuces get infested with this they are a pretty poor crop, no matter what cure is used. Get some fresh tobacco stems, ones that will make you sneeze when you unpack them, and chop them up fine, into pieces say 3 inches long,

Clematis Paniculata,

(See illustration first page this paper).

Beautiful Hardy Climber, fragrant and exceedingly floriferous. . . . . .

FINE STRONG PLANTS, 35 cts. Each; $3.00 Per Dozen.

ELLWANGER & BARRY,

Mount Hope Nurseries, Rochester, N. Y.

36th YEAR.

with an axe, and spread these thickly between the rows of lettuces; sprinkle them with water, and the fumes from them will dislodge the aphis. Remove the old and replace with more fresh stems every 3 or 4 days till you are rid of the aphis.

7. Will lettuces head in a 4-inch pot?

Ans. Yes, well enough, and it is not all an uncommon thing to head white seeded Tennis Ball in this way in winter when only a small quantity for private use is needed; but for market it would never pay, being far too laborious and expensive.

8. Treat a seed bed in the greenhouse? We have had trouble with ours.

Ans. For a limited quantity sow in flats and prick out the seedlings into other flats or into a bed of fine soil near the glass in a not very bright light. Regular market men have a side bench altogether used as a seed bed; of course the bed has to be shaded a little till the seedlings appears. Be sure you sow fresh seed.

CABBAGE.

About the 10th or 15th of February I sow cabbage seed in a gentle hotbed. When the plants are up I give plenty of air and keep them as dry as they will bear in order to harden them. When they have made a couple of leaves I transplant them into a cold frame about two inches apart, and keep them close for a few days until they make new roots, and after that give them plenty of air. If the plants have been properly hardened they will be able to stand any frost likely to come after they are set in the field. If the ground be fairly rich and if there is plenty of manure it may be spread broadcast and plowed in and the harrow run over the ground a couple of times. If manure be somewhat scarce open good deep drills 2 feet apart for the early varieties and 2½ feet for Flat Dutch or other large kinds. Spread the available manure along in the drills and cover it. If the drills are straight a line stretched along them will be over the manure and the plants can be set along the line. Plant the early varieties 16 or 18 inches apart and the larger sorts 2 feet. When the lines have been stretched and before planting it will pay to give the rows a liberal sprinkling of superphosphate with a little nitrate of soda added. As the plants grow keep the plow and hoe busy. P. F.

Market gardener, Westchester Co., N. Y.

A LIST OF VEGETABLES.

W. T. E., writing from Central New York, asks for "a selected list of the best varieties of garden seeds (vegetables and fruit) for my home grounds, this list to reflect *your experience* in vegetables, and melons of the best quality and flavor."

A list of vegetables depends on circumstances. Some varieties do well in one place that are only second rate in others, for instance Concord corn is one of our best at Dosoris and poor enough in other places that we know. Some folks grow and like Black Mexican corn, while others wouldn't touch it no matter how sweet it might be. At one time Salamander lettuce was the best we had; to-day we don't depend on it because the variety has "run down." One year we lost 3,000 heads of Perfection Heartwell celery because the strain of seed—good enough from the same firm the year before—was bad, producing loose flabby heads. We have never bought this variety from that seed firm since. Many tomatoes have lost their identity, and wild on the dung hill we can pick maybe better and finer tomatoes than from the choicest varieties cultivated in the garden. Convenience makes a difference too. Many don't want Champion of England pea (the best quality of all peas) because it grows so tall and needs netting or brushing, but would grow Premium Gem and Stratagem instead, and so on. But we will do our best.

ASPARAGUS.—Colossal. Fit to cut third season after sowing.

ARTICHOKE.—French Globe. Bear a good crop second summer.

BEANS, green-fleshed snap—Valentine and Refugee. Wax—Improved Black Wax. Limas—Dreer's or Challenger. Dwarf—A few of Henderson's for first early, then either Burpee's or Dreer's for main crop.

BEETS.—Eclipse as a turnip beet for all summer and a few of Long Smooth Blood added for winter.

BRUSSELS SPROUTS.—Improved half dwarf.

CARROT.—Half-Long stump rooted.

CABBAGE.—Jersey Wakefield as an early, and All Seasons for late summer and fall. Drumhead Savoy for winter.

CAULIFLOWER.—Snowball for all the time.

CELERY.—Perfection Heartwell and Giant Pascal. You may like a little White Plume or Golden Self Blanching for early, but remember they are no good for late.

CORN.—Cory, or Ford's Early for early. Potter Excelsior or Moore's Concord next, then Stowell's Evergreen for later. Although Country Gentleman is a delicious corn lots of people don't like the look of it, it is so uneven on the cob. Hickox is a fine corn.

CUCUMBERS.—Improved White Spine.

EGG PLANT.—N. Y. Improved.

ENDIVE.—Green Curled.

KALE.—Curled Dwarf Green Scotch for fall and winter.

LEEK.—Large Flag.

LETTUCE.—Boston Market for winter, Big Boston and Grand Rapids for frames or outdoors in spring. Improved Hanson and Salamander (selected strain) for summer.

MUSK MELONS.—Long Island Beauty, green fleshed; Skillman's Netted, green; Surprise and Emerald Gem, orange. With us these are about as good as any, but often the best are poor enough. Would that we could get northern grown seed from selected fruit for cultivation in the north.

WATER MELONS are most as bad as musk melons. But we manage to get some nice Cuban Queen, with sometimes Phinney and Ice Cream.

ONIONS.—Large Red Wethersfield, Yellow Danvers and Southport White Globe.

OKRA.—Dwarf Prolific.

PARSLEY.—Moss Curled.

PARSNIP.—Hollow Crown.

PEAS.—For first crop an Extra Early, but don't sow it again till August for a fall crop. Then sow Premium Gem and Heroine for summer crops. For quality, however, Champion of England is the best, but it grows 5 or 6 feet high, and more sometimes.

PEPPER.—Ruby King.

RADISH.—French Breakfast as a turnip radish, and Chartier's as a long one. For quality the Chartier is the best.

SALSIFY.—Sandwich Islands.

SPINACH.—Viroflay or Thickleaf.

SQUASH.—White or Yellow Custard, or Summer Crookneck for summer, which ever you like best, and Boston Marrow or Hubbard for winter.

TOMATO.—Table Queen or Perfection. As regards quality Ponderosa is an excellent tomato, but it is very large.

TURNIPS.—White Egg and Yellow Globe.

BLANCHING CELERY.—F. C. C., Bath, Maine, asks: "When you use boards or straw for blanching celery do you trench?"

Ans. When we grow it in wide apart rows we throw out a trench about four inches deep in the row, this is more for convenience in holding the water there in summer than for earthing up. By early fall this trench is almost level with the ground. We stand the boards on edge, one on each side of the row, held apart if need be by a little block of wood at top, and draw some earth against the outside of the boards to steady them in place. In using straw (we use salt meadow hay instead) we prefer the bed system and for early celery. Mark off the rows eight or nine inches apart, according to the goodness of your soil, drawing the lines as deep as for sowing peas or beans in, plant five rows with celery, leave two empty, levelling them for a path, then plant other five with celery, and so on with as many beds as you want. Down the outside of each bed close by the outside row set the boards on edge, and with stakes driven into the ground fix them steady and in place. This helps to draw up the celery, but when it gets up a little some salt hay worked in between the plants keeps the leaves close in and upright, assists in blanching, and by mulching conserves the moisture in the ground. But with this bed system you must be prepared to give the celery lots of water, far more than in the case of single rows. Use the hay six, eight or more inches deep if need be.

GREENHOUSE LETTUCES ROTTING.—C. H. R., Delight, Md., writes: "1. When the lettuce heads and is about ready to cut it begins to rot at the head. Why? 2. What quick heading lettuce would you recommend for forcing in hothouse?"

Ans. 1. Some local cause as a too close or moist atmosphere, a wet surface of the soil, too much shade, hot sunshine on the heads while they are wet, watering overhead so late in the day that the plants don't get dry before night, and so on. 2. Boston Market, Rawson's Hothouse and Denver Market.

New Seedling Chrysanthemum

WM. SIMPSON.

Certificate of Chrysanthemum Society of America, November 2d, 1895.
First Premium for best Pink American Seedling, Pennsylvania Horticultural Society Exhibition, November 5th, 1895.
Certificate of Merit, Pennsylvania Hort. Society, November 5th, 1895.
Silver Medal for best American Seedling, Pennsylvania Horticultural Society, November 5th, 1895.

See Garden and Forest,	-	Nov. 20th,	page 465.
" Florists' Exchange,	-	Nov. 23d,	" 1144.
" American Gardening,	-	Dec. 14th,	" 415.
" American Florist,	-	Jan. 25th,	" 652.
" Gardening,	- - -	Feb. 1st,	" 151.

It is the **EARLIEST LARGE CHRYSANTHEMUM GROWN.** Has been cut as early as Oct. 15th; flowers measuring 11 inches in diameter. A good strong healthy grower, stiff stem, 4 to 5 feet high, with clean foliage.

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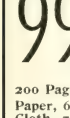

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grow easier from seed than you think. Try it. One collection of 5 different Varieties, including cultural directions 50c. One collection of 12 different varieties of imported flower seeds in pain packets, 50c.

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SITUATION WANTED By first-class florist and gardener, young married Swiss, to take charge of gentleman's summer place with greenhouses. Best of references. Address C. G., care Gardening.

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Fine varieties, cheap, for garden planting.

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BARGAINS Blue Spiræa 30c. Crimson Spiræa 30c. Double Golden Rudbeckia 40c. Vitis Coignetiæ 50c. Crimson Rambler Rose 25c. all new hardy plants for $1, by mail. A. BLANC & CO., Philadelphia, Pa.

When you write an advertiser please state that you saw the adv. in GARDENING.

TOMATOES.

As soon as possible after the 15th of March I sow my tomato seed in a hot-bed. I prefer sowing in rows about three inches apart, putting in plenty of seed. When they are up they should be gone over and thinned to an inch between each plant. They should have as much air as possible without chilling them, and not too much water. The object is to make them hardy, and to keep them short so that they may be the more safely transplanted. At the end of the first week in April a cold frame is prepared in as warm a spot as convenient, and into this frame the young plants are planted 4 to 6 inches apart each way. If the latter distance all the better. If the frame has been in use during the winter simply digging it up and raking it over is sufficient. If a new frame let the sash stay on for a few days to warm it before planting. Before raking give a dressing of superphosphate with a little nitrate of soda added, about half a pound of nitrate to four pounds of superphosphate, and this to every ten sash, raked well in. If the soil is damp the plants will not need watering when transplanted. If they must be watered then give as little as possible, keeping them close for a few days until they root again. If they have been well hardened in the hotbed they will stand the change to a cold bottom without much suffering. In airing the cold frame care should be taken to close it up some time before the sun has left it, and as soon as the sun has gone and before the frame loses its heat cover up snugly with mats, or hay, or other material used for that purpose. When the plants are well established in the cold frame give air on bright days, and not too much water. The idea is to get a short stocky plant with three or four branches showing by the first of May. After that time the sashes can be removed during the day and put on towards evening for ten or twelve days, after which they may remain off for three or four nights.

After the 15th of May it is usually safe to set them out in this section. Broadcast a light dressing of manure, plow it in, barrow once, and mark off the rows 4½ feet apart, and the places for the plants 4½ feet asunder in the rows. Scatter a double handful of superphosphate and a tablespoonful of nitrate of soda for each plant. Set the plants in the soil down to the seed leaf. When they have made a strong start and begin to branch keep them spread out evenly around, not allowing them to grow up in a clump, but giving sun and air a chance to reach the center. Do not tie up to stakes, or prune, keep the spaces between the rows worked until the plants cover all the ground. Plants grown in this way will lift with good balls of earth, and can be easily set in the field. P. F.

Market gardener, Westchester Co., N. Y.

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Beautiful Cosmos

have long been the most popular flowers for blooming in the autumn. The new mammoth Cosmos is the king of these grand flowers, growing double the size of any other variety and blooming abundantly in beautiful colors. It has captured the fancy of flower lovers everywhere. We have a sufficient stock of this grand flower to supply all demands and make the following liberal offer to readers of this paper.

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VICTORIA REGIA NYMPHAEAS AND NELUMBIUMS We strongly recommend our new strain of Victoria regia, which is superior to the old type in vigor, size of leaf and free flowering qualities. Seed may be sown till early in March and produce flowering plants this season, $3.00 per dozen. Seed of Nymphæa sown now will produce flowering plants this summer; start tubers of tropical varieties now.

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250,000 Peach Trees

100,000 Plum best Eup. and Jap.
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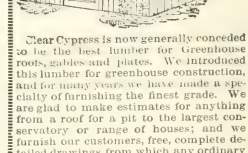

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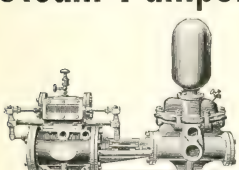

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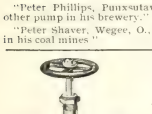

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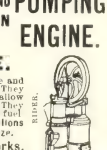

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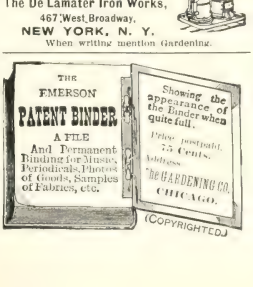

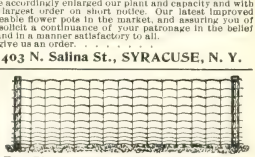

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MY GARDEN IN NOVA SCOTIA.

There are seven terraces with southern exposure. In the rear of the first are shrubs of various kinds such as deutzia, *Pyrus Japonica*, flowering currant, *Hydrangea paniculata grandiflora*, Tartarian honeysuckle, flowering crab, etc.

On the first terrace flat there are perennials such as phlox, columbine, etc., in front of which in spring are bulbs, such as daffodils, narcissus, hyacinths, and scillas. In late summer chrysanthemums and cosmos fill their place. Sweet peas and dahlias are at the north corner. The second terrace is planted with marigolds, tall ones at rear and dwarf French ones in front. The third terrace has gypsophila, the fourth one geraniums, the fifth, Drummond phlox, the sixth, petunias, eschscholtzia, coreopsis, asters, linum and other annuals; the seventh is filled with pinks of various sorts and mixed annuals. Each terrace has a narrow edge of lobelia, centaurea and other foliage plants. At the foot of the terraces is a rose bed six feet wide running the whole length of the front, 120 feet, in which are 150 rose bushes—no two alike—and nearly all are healthy, vigorous growers and bloomers. Your American Beauty is one of the number, although large, pink shaded, etc., she is not a beauty, British soil may not be agreeable to her. Would she smile if known as "Monroe"?

The soil of the terraces consists chiefly of the surface of old pasture lands and well rotted barn manure, of which several hundred loads or tons were used. The drainage is almost perfect and the result satisfactory.

The hedges are of American white spruce (*Picea alba*) and thirty years old. The bushes when planted were two to three feet high, and they stand in single line at distances varying from eighteen inches to eight feet. They require no special care at any time except trimming, which is generally done in February or March. In locations where they are exposed to strong cold north winds the lower branches are injured or destroyed.

I do not recommend the white spruce as a tree suitable for a hedge in Wisconsin. Your correspondent G. P. G. of Chicago (page 116) will no doubt wisely accept your advice. Our climate is unlike that of the western states. We have no extremes of heat or cold. Norway spruce has been planted here singly, in groups and in hedgerows, and has flourished for a few years, but in every instance the lower limbs have died out and then its usefulness and its beauty were lost.

ROBERT CAIE.

Yarmouth, Nova Scotia.

FLOWER BEDS IN SUMMER.

I enclose herewith plan of a portion of my garden devoted to the growing of flowers. It shows the size and shape of the beds, and although I generally succeed in making it quite attractive during the season, I am not satisfied that my manner of planting is correct. The beds shown are intended for flowers, annuals principally, although bulbous and decorative plants may be used in the general arrangement if necessary for artistic effect. Cannas are planted in another part of the

garden, while such flowers as phloxes, verbenas, etc., as well as hardy plants, are again found elsewhere. You will notice that the center bed (star shape) is reserved for scarlet geraniums. For this I should like a border of a fancy leaved variety. Last year No. 1 was planted with gladioli, No. 2 with various annuals, interspersed with tuberoses and gladioli, No. 3 with dianthus and Marguerite carnations and No. 4 with petunias. Up to midsummer this arrangement seemed satisfactory, but later on the beds assumed an appearance anything but pleasing to me. What arrangements of plants and varieties can you suggest that will obviate this trouble, and bring about a pleasing and effective result?

Dayton, O. A READER.

Your flower beds are large, heart-shaped, star-shaped, half circle, angular and oblong square and spread out on a grass plat so as to form a geometrical flower garden, this style is not at all suited for the plants you wish to grow in them because one cannot keep them filled full of fresh bright plants all summer; after July they must present a more or less ragged appearance. We would suggest a long deep undulating border on the other side of the walk from the chrysanthemum bed, divided across twice by a curved walk, then an oval bed on each side in the concave depression of the curve, this would hold more than your present beds and not cut up your ground as much. Write out a full list of what flowers you wish to have all summer long, then find places for them in the border or beds, arranging them so that there will be few gaps at anytime. Annuals or perennials don't last in beauty all the time, and as the perennials are cut down and the annuals exhaust themselves the empty spaces should be filled up by the more room needed for contiguous plants or with extras from the reserve garden Summer-flowering bulbs as gladiolus and hymenocallis come in nicely for this work. Edge your bed of scarlet geraniums with the white edged geranium Beauty of Auburn. The moment a plant's usefulness is past out with it and in with dwarf nasturtiums, single dahlias, China asters, petunias, coreopsis, marigolds, or any other plants you may have prepared beforehand, or sow some mignonette or sweet alyssum in spots.

GERANIUM ENID

FLOWER GARDEN QUESTIONS.

The following questions are asked by F. N. B, Northern Indiana.

1. GILIA DICHOTOMA.—This is said to be smothered in flowers, and useful for bedding. Is this really so?

Ans. It is a small Californian annual of dense growth and extremely floriferous. Its chief use is for garden decoration, not for cutting, with us it has not been of long duration.

2. GODETIAS.—Are they worth growing?

Ans. Among mixed garden flowers, yes. Sometimes it is a little hard to get them well started, but when they do well they are quite pretty annuals.

3. SUMMER BLOOMING CARNATIONS.—Are there any carnations that can be purchased that will bloom from June through the summer?

Ans. June is rather early. About the best you can do is buy 100 rooted cuttings now of greenhouse varieties, say Portia, scarlet; Thomas Cartledge, red; and Wm. Scott, or Albertini, pink; and plant these 2 inches apart in a shallow flat, keeping them indoors till the end of April, when they should be planted out in the garden. They will start to bloom in July or August and bloom more or less till November. And if you want some of them for winter blooming lift what ones you want in August or September and pot them. The Marguerite carnation sown indoors in February should begin flowering in July and last in bloom most all summer, but while many are good, there is a good deal of poor stuff among them. The new Chabaud strain of carnations is really fine, and while they will bloom the first year from seed, they won't start in June, or in our experience, before August.

4. AMPELOPSIS VEITCHII on painted brick wall.—Will this vine cling to it?

Ans. Yes, but not as tenaciously as to an unpainted one, therefore every here and there it should be securely tacked to the wall.

5. CRINUMS.—How shall we treat them to make them bloom, stating soil and size of pot?

Ans. Don't bother with them in pots. Plant them out of doors in summer in fair common soil, and lift them in fall, letting them stay dry and free from frost till spring, when they should again be planted out.

6. DEUTZIA LEMOINEI.—Where can I get it? I was charmed with Mr. Trumpy's article on select hardy shrubs, page 134.

Ans. Probably our nurseryman have no stock of it on hand, but any of the leading ones among them can get it for you, in fact we believe most of them will have it in stock next fall. Prompt them now.

7. TROPÆOLUM SPECIOSUM.—Of whom can I get some tubers? Isn't it a "must have" to a vine lover?

Ans. Ask Vaughan or some other seedsman to get it for you. If they send to Ware, Carter, or some other florist-nurseryman or jobber at once for it, the tubers will come by mail this spring. We earnestly hope you may be successful with it, but we have grave doubts. But try anyway, it takes enthusiasts and enterprising folks like you to keep floriculture alive.

8. BARRELS *v.* STRAW FOR WINTER PROTECTION.—Am already tired of seeing the boxes and barrels filled with leaves over my plants. Have wrapped two deutzias in straw and tar paper. Will this protection be as good?

Ans Yes, it will answer admirably.

9. VITIS COIGNETIÆ.—Is it superior to the American ampelopsis in summer foliage and finer in fall?

Ans. It is decidedly distinct from the American ampelopsis in general appearance, having more leaves like a grape vine. "A vine lover" must have this new Japanese fine foliage vine.

HARDY SHRUBS IN MY GARDEN.

The list of hardy trees and shrubs I gave you three years ago (page 51, November 1, 1893) have all lived and done well. Of the evergreens, Colorado blue spruce is the most satisfactory as it keeps its lower branches and has the best growth. Of all our Norway spruces we haven't one that would be called a beautiful tree standing alone. They lose their lower branches and do not thicken up I would never plant them if I could get the blue spruce even though I should have to pay five times as much for the blue. Shrubbery that will live in our climate always gives plenty of bloom with the exception of the lilac, yet when mine do flower they are one mass of fragrance.

Exochorda grandiflora, Japan or tree lilac and flowering crab never winter-kill but they have not bloomed as yet. [The tree lilac is generally eight or ten years old or nearly before it blooms, the exochorda and crab bloom earlier in life. —ED.] Weigelia and Japan quince kill back every winter. Pæonies, *Lilium candidum* and *L. speciosum*, day lilies, yucca, Kœmpfer's iris and common iris, tiger lilies, lily of the valley, *Clematis Jackmani* and other large and small flowered kinds, Russian tamarix, and smoke tree, all are free bloomers but must be protected through the winter. We put boxes and headless barrels on some and fill with leaves. All others we cover with strawy

GERANIUM H. BUCHNER.

manure. Everyone must know by this time that *Hydrangea paniculata grandiflora* is the ironclad bloomer for all northern states. Honey-suckles, lilacs, spiræas, snowballs, common roses, barberries, almonds, flowering currants, amelanchiers, Judas trees, common dogwoods, *Prunus triloba*, olives (*Eleagnus*), catalpas (*speciosa*), and mock oranges all bloom freely with us and are perfectly hardy.

Oleanders, tender hydrangeas, montbretias, agapanthus lilies, century plants, figs, roses, cannas and plants of like nature we winter in the cellar. Whirlwind anemone phlox, fraxinella, old garden pink, achillea, garden heliotrope, (Tussilago fragrans) gaillardia, and larkspur, improve every year, only they should be covered in the winter.

MRS. M. G. BAKER.

Eagle Grove, Iowa.

IMPROVEMENTS IN GERANIUMS.

The past few years has seen some marked gains in the geranium family in all the various classes; among the Bruants improvement is especially noticeable. Bruant (or *Heteranthe*) still holds its place, but we have now advances in size of truss and bloom, while the freedom of flower is quite as great and they are quite as able to withstand the sun as the earliest of the race. But there is still no white Bruant, though there are two or three approaches in that direction. Many of the double Bruants are distinguished by the odd irregular outline of the florets, some of them approaching a four sided shape, which is rather charming.

Quite the opposite of the Bruant race are the "round flowering English varieties," which embraces our finest single varieties; they combine enormous size with circular form, the petals nearly always overlapping, and the trusses are of good size and fine finish.

To the older set, Lily H. Cannell and Rev. Harries, etc., have been added some still better varieties. Snowdrop has pure white flowers over two inches across with deeply overlapping petals, the stem is long and stiff and the effect very telling. Among pink flowered varieties there is nothing finer than Gertrude Pearson; it is the largest of its color—soft, bright rose pink, with white blotch. Florence Farmer is a good advance in the way of Mid-Summer, salmon and white marbled together. This class is particularly rich in bright and deep reds, like Dr. S. Grey, Dr. Rawson, Dr. Rothera, Candace and Enid, and the plants are of strong growth and good habit, as well as having blooms of fine size, form and color.

Very distinct from these is the new race of Aureole or Corona type, mostly in singles They nearly all combine an odd intermingling of three shades of color, white at the center, around this a wheel of bluish shade mingling and deepening to some shade of red. Mme Jules Chretien was the forerunner, but it has been left behind by such fine examples as Le Rhone, a rosy scarlet with white eye and white blotch on the upper petals the upper part of the blotch shading into carmine at its junction with the ground color; then there is Mme. Bruant, which is white, veined carmine, all the petals edged with bright solferina. Marie Hoste, crimson with white center, surrounded by a shaded aureole of bluish heliotrope There are thirteen of these Aureoles, and all are good.

The double varieties also show fine new sorts; Comtesse Harcourt is an extra good pure white, with large beautifully formed flowers that bloom through the long dry summer. Hedewig Buchner is another grand double white, has irregular shaped florets as in Mme. Ayme Chevrlierre and large trusses on long rigid footstalks. The clean pink shades so very much in demand are well represented by Gambetta, bright rose; Gen'l. Boisdeffre, rose with scarlet center; Lysiane, pink bordered white, and Mme. A. Barine, rosy pink with white border.

Among the oddities is little L'Enfer, a very low growing black geranium with small scarlet flower, and the Crystal Palace Gem family receives four additions. M. Givord, Princess Clementine, Golden Bedder and Arbutus, which last has fair sized salmon flowers in profusion.

The last two or three years has given us some magnificent ivy geraniums, having large, perfectly formed and full flowers of beautiful colors. Gen. Championnet, scarlet, and Incomparable, rosy carmine, are unmistakably fine. Since then the French have given us Camille Doucet, rosy salmon; Chas. Monselet, fiery red; Jos. Maistre, amaranth; Jules Janin, rosy violet, and La Foudre, orange scarlet; while the best of the English sorts since Souv. Chas. Turner are Robt. Owen, rose color; Rycroft Surprise, rosy salmon; Garden's Glory, bright scarlet; Edith Owen, rose color, and Beauty of Castle Hill, soft rose with dark blotch. All of these are magnificent and cause us to wonder if they possibly can be improved upon in the future.

The geranium is of the easiest culture, and for this very reason is frequently seen in poor condition; it is planted in wretchedly poor soil and given a situation where no other plant would be expected to live; it rewards the grower with some tiny leaves on the tips of gnarled bare stems and an occasional imperfect bloom; how different the result when placed in the hands of an intelligent lover of plants. Give it rich and well drained soil, a sunny open spot, plenty of moisture, and our favorite fairly ripples over, with leaf upon leaf until we have a pyramid of beautiful foliage. Soon the long, stiff flower stems rise into the air and we have a specimen covered with bloom, one of the most beautiful objects to be found in greenhouse or garden. A tiny geranium blooming in a 2½-inch pot is no more an example of its variety than is a pot bound chrysanthemum blooming without disbudding an example of what may be done with the latter by care and skill. The ordinary florist makes a mistake when he fails to show his customers what a well grown geranium may be like when pushed rapidly along into a 6 or 8-inch pot. A comparison of the foliage and the bloom of the tiny plant with those of the matured specimen would furnish an object lesson not soon to be forgotten.

Richmond, Indiana. E. G. HILL.

TULIPS—GLADIOLUS.

By the way, if any of your northern readers have not tried a bed of Gesneriana tulips and want something perfectly lovely and satisfactory they should try them. I got of J. W. Elliott a hundred bulbs in September, and planted them in October in a bed of good rich soil, and covered them first with leaves, then with manure over a foot deep. In the spring I had one hundred blooms as large as saucers and all of the same height. They were gorgeous and the longer they lasted the more brilliant they became, red with a purple blotch in center. Through the cold spell we would think "well, the tulips will go now," but in the morning warmth they would straighten up and fairly glow in the sunshine. Over two weeks we enjoyed their beauty. I took up the bulbs about the last of August and kept them in the kitchen till time to plant them again. Was that right? [Yes. But we would have lifted them as soon as the leaves died down, and let them remain out of the ground in a cool, dry, airy, dark place in house or shed till planting time. This fine tulip however, is one of those that we have found to live and bloom first-rate year after year in clumps in the garden without being disturbed at all in summer.—ED.] They had nearly doubled and I am afraid will not be so large next spring. I have tried a great variety of bulbs for winter growing but they never lived beyond two winters. Last winter, having a good collection of hyacinths, I tried planting them

in the ground and covered them nearly two feet with leaves and manure. This spring two of them threw up beautiful long spikes of bloom that staid in flower longer than the house planted ones. If they come up again this spring and bloom I shall have solved the problem in bulb planting, deep planting and deep covering with leaves first and then manure. [A sheet of tar paper spread over top of leaves and litter and held in place with some earth over it will keep the mulch dry and help greatly in excluding frost.—ED.]

GLADIOLUS.—Our prairie soil is grand for gladiolus. When I give them new soil they are immense. I take them up in the fall, leave them with the tops on for a short while, then take off all covering, place the bulbs in baskets with newspapers and put them in a dark closet that doesn't freeze. I never lose any. Everyone who can should try plants and bulbs himself. Good planting and deep covering would insure the safety of a great number that we now think tender.

MRS. M. G. BAKER.

Eagle Grove, Ia.

Trees and Shrubs.

PLANTS FOR COVERING AN EMBANKMENT.

I am anxious to secure some plant which will retain embankments and keep them from washing, I have been informed that French engineers have been sowing poppy seed on the railroad embankments with good results. I do not know of any poppy that I think would be suitable for that purpose, a French gardener here says it is not a poppy but a *Hypericum*, he does not know which one, however.

St. Denis, Maryland. J. A. B.

We wish you had been more explicit about the embankments telling us their nature, grade, exposure, etc., what is growing on them now, and how you would like to have them covered, with a tree and shrub growth, or with dwarf plants. Failing to know these points we can answer you only in a general way. *Hypericum patulum* is probably the species referred to by the gardener; it is a good deal used for carpeting banks and shrubbery margins where the soil is ordinarily good and moist, but of little avail on dry exposed banks. *H. calycinum*, and a low shrubby species is also used with it. But we believe the "poppy" you refer to is our Californian eschscholtzia which is widely naturalized on railroad embankments in temperate Europe. Although in the north this plant acts as an annual, it really is a deep rooting perennial in California, and lives as such in the south; we are not sure if it will do so at Baltimore. If sown broadcast over the embankments now the plants will begin blooming in June. All manner of annual poppies may also be sown in the same way for color effect, but they are of little use in binding the bank. Hall's Japan honeysuckle is the best all round vine or low growing plant we have for this purpose, periwinkle (*Vinca minor*) is also good in slight shade, and money-wort and vine-leaved European ivy in denser shade. Of shrubs we have a good many useful for this purpose. The Scotch broom is largely used to clothe the embankments on the Pennsylvania railroads, and both it and the European furze kept headed well down should thrive finely on sandy or gravelly banks in Maryland. The barberry (*Myrica cerifera*) planted thickly answers admirably for covering an embankment; and after it gets started well so does the matrimony vine (*Lycium*) in fact the last named is extra good because of its spreading and surface rooting habit and tendency to gather and hold surface humus The silvery elæagnus, sea buckthorn, common barberry, and our wild roses do well on embankments, and the Japan trailing rose (*Rosa Wichuraiana*) if it gets good ground to start in is excellent to spread over and hold its face from erosion. The yellow locust is also a capital tree for this end because of its far-spreading surface roots, and no matter how much we keep it headed down it persists in living, rooting, and suckering. The same with the trumpet vine (*Bignonia*).

To prevent embankments from washing we must stop the washes by damming up the erosions with brush, rocks, earth, etc., and provide for leading off the water from its former ruts. Now get a dense mass of vegetation on to that embankment as quick as possible; let the grass and other low plants grow up among the bushes and rot down to make a soft spongy surface that will catch and hold the water till it sinks into the earth rather than let it run off of its surface. Mix up the bushes in planting, for some will grow and others fail.

TRANSPLANTING ELMS.

S. A. H., Winnetka, Ill., ask: "When planting out elms two inches in diameter in the fall is it necessary to cut back the tops? If so, is it too late to do it now?"

Ans. Yes, it would have been better had the tops been cut in well at planting time in the fall; if this had not been done then by all means do it now. Newly planted trees whose tops have not been cut in may start to grow all right, the buds bursting and the leaves developing beautifully, just as well as if the tops had been headed in, but this is no sign of prosperity, by July their thrift may flag and their foliage wilt and wither, and should a hot dry spell set in enervation may lead to death in some cases; the demand of the tops for sustenance from the roots is greater than the roots can supply. This is not the case with trees whose tops had been well cut back at planting time, their demand for food is moderate and the roots can supply it, and by the time their demand increases the roots have mended and are growing enough to be able to furnish the supply, and the tops instead of dying at midsummer keep plump and fresh and grow a little all summer long, and go into winter condition full able for a fairly good growth the following season.

SELECT HARDY SHRUBS.

EUONYMUS ALATUS or Japanese winged-barked euonymus is a most desirable large shrub of broad dense form, its wood buds in spring are pink, its foliage neat and plentiful at all times, is exceedingly beautiful in autumn when it assumes a pink and dark red hue. Its whitish flowers are numerous and insignificant, but its small scarlet fruits are quite showy in fall. It is hardy, easy to grow, does not get beyond bounds, and it is seldom troubled with bark scale, a marked point in its favor.

EXOCHORDA GRANDIFORA also a Japanese large shrub is one of the indispensable plants of our gardens, blooming in May in great beauty and profusion. It has white showy flowers. Quite a common shrub in nurseries and gardens, hardy and easily grown, and one that should be in every garden.

FORSYTHIAS are all yellow flowered and natives of China and Japan, they bloom in April and May before the leaves appear. *Fortunei* of upright form is perhaps the best for general purposes; *suspensa* being of trailing habit is excellent to use as an ornamental vine, but it must be supported, for itself it will neither cling nor twine.

ALTHÆAS (*Hibiscus Syriacus*) bloom in late summer and early fall, are showy, and very useful in the garden. Among the best are Compacta, single-flowered, white with chocolate center; Totus Albus, single, pure white, one of the best; Purpureus semi-pleno, a fine and uncommon tint of purple; and Leopoldii fl. pl., large double, flesh color shaded with rose. Prune them back considerably every year in order to get fine fall flowers.

OF HYDRANGEA PANICULATA we have three distinct forms, the first has upright panicles of "single" white flowers that open in July, then comes the *grandiflora* in August and September with immense panicles of "double" white flowers changing with age to rose tinted, and after that comes another "single" flowered form not unlike the first, but distinct in its time of blooming; its flowers fade to rose or carmine tinted. Strong young plants to begin with, then good soil, moisture, and hard pruning are what they need. This hydrangea is hardy away in the northwestern states. The oak-leaved hydrangea (*H. quercifolia*) also does well here, and blooms at midsummer. Although a native of our Alleghany Mountains it is one of our best garden shrubs.

TRANSPLANTING EVERGREENS.

IN GARDENING, Feb. 1, you give instructions about digging and preparing holes for planting trees, for which many thanks. It was what I wanted to know, as I have quite a lot of fine evergreens I wish to plant this spring. I bought two-year old transplanted seedlings and have grown them two years in my flower garden They now have good leaders and are accustomed to the sun. When shall I plant them? L. G. C.

Chrisman, Va.

Ans If they are arbor vitæs, fir trees or spruces, you may plant them about the same time as you plant your early potatoes, that is just as soon as the ground is dry enough and mellow enough to work; it is safer to delay planting pine trees, red cedar and other junipers some days longer, or till you notice the wood buds are about starting to swell. Be very careful not to expose the roots to sunshine or wind between digging and planting time. In planting spread the roots well out, introduce fine dryish earth between and among them, tread the soil firmly, and if need be give a good watering, then a mulching. If by any chance the roots should get dry or exposed, after planting for several days, and twice a day except in moist weather, sprinkle the evergreens overhead from a fine watering pot rose till they recover themselves enough to get along without it.

SNOWDROP TREE.

(*Halesia tetraptera.*)

Mr. Egan, page 114, says this tree is hardy with him. It has failed with me in northern Indiana Will Mr. Egan kindly say how he treats it? N. B.

No special treatment other than accorded plants I have reason to think not over hardy. I put such plants in sheltered positions, in well drained rather poor soil,

in order to induce early ripening of wood. Mr. Simmons, superintendent of Graceland Cemetery, Chicago, states that this species is hardy with him. His soil is sandy, hence the drainage perfect.

W. C. EGAN.

FERTILIZER FOR OLD SHRUBBERY.

J. D. H., Chicago, writes: "What is a good fertilizer for old snowballs and other shrubbery which have been planted thirty-five years and show a want of some stimulants? I have available hard wood ashes, ground bone and horse and cow manure."

Ans. First of all go into that shrubbery and thin it, if that is necessary, cutting out all the dead and sickly branches and stems, and head back the long naked ones, say half their length. This will spoil a good deal of this year's flowering shoots, but one cannot help that. Gather up and rake out all the prunings and cart them away and burn them; this will leave the shrubbery beds all nice and clean and ready for fertilizing. Now sow wood ashes broadcast over all the surface, say a quarter of an inch thick, and rake it in with a long-tined, new steel rake. Then mix the horse and cow manure together, using more of the latter if possible, and spread a solid carpet of it, 4 to 5 inches deep all over the shrubbery bed, leaving it there over summer. If you had some fresh field loam mixed with the manure before applying the dressing, the compost would be much better. It will act as a mulch in summer as well as a substantial fertilizer. Don't dig shrubbery beds that are a living mass of roots: it is well enough to fork the empty spaces between the shrubs, and little more than scarify the general surface to make it pervious to air and water. Feed the ground from the top and repeat the dressing another year. Ground bone is excellent, too, but had better be scarified into the soil; half as much as of ashes would be a fair dressing, but the ashes and manure are enough to put one at one time.

A DOUBLE-FLOWERED PINK SPIRAEA.

C. S. H., Higganum, Conn., writes: In a bouquet at the cemetery I saw some branches of a double pink spiræa that appeared to be almost identical with the double *Spiræa Reevesi*, excepting in color, which was a very pretty shade of pink. Can you tell me what it is?

Ans. There is no pink spiræa answering that description, so far as we know—and we know most of them that are worth growing. We are inclined to think it must have been a spray of the double pink hawthorn, whose flowers much resemble those of the double Reeves's spiræa, and are in bloom about the same time, say about Decoration Day. Pity you couldn't send us a little bit—even a leaf or a tip of a branch would help us to tell what it is.

ANDROMEDAS, are they poisonous to the touch? asks one of your correspondents, page 146. We have handled a great many thousands of *Andromeda Mariana*, *A racemosa* and *A. ligustrina*, and also collected seeds from them and never perceived any ill effects from it, but it is quite common to find poison ivy (*Rhus toxicodendron*) growing with such shrubs, and occasionally some of our men get badly poisoned by that.

WM. BASSETT.

New Jersey.

JAPAN MAPLES FROM SEED.—O. G. B. asks: "Can I grow these from seed, and if so under what conditions?" *Ans.* Yes, easily. You know maple seeds of any kind, if kept dry, retain their vitality only a short time, and this necessitates that they be sown as soon as ripe; or if the seeds are to be kept from fall to spring keep them over winter in sand or earth. As soon as the seeds are ripe or received from elsewhere sow them broadcast in a cold frame, covering thinly, and shade with lath-shading. Our good friend, Mr. Trumpy, raises thousands of Japanese maples in this way.

The Greenhouse.

GREENHOUSE VINES.

One of our readers who has been much interested in our recent articles on this subject writes: "We have a city palm house built upon an upper story and all our climbers must be grown in pots or boxes. The enclosed list embraces all the vines mentioned in the articles referred to."

Ans. Allamanda nobilis, grandiflora and *Schottii* are first-rate woody vines and all do well in pots; indeed they can be better handled in pots than when planted out, by drying and resting them at will, and having them in a flush of growth and bloom when we will.

Aristolochia elegans, ornithocephala and *Sturtevantii* do well in pots.

Bougainvillea glabra, speciosa, and *spectabilis* are fine pot plants, and as in the case of allamandas can be humored better in pots than when planted out.

Bignonia venusta and *B. Chamberlaynii* do well enough in pots or boxes, and because of their floral advantages, should not be omitted, but they do better when planted out.

Cereus triangularis does fine in a pot.

Clerodendron Balfourii is an excellent pot plant. If you ever visited any of the great summer exhibitions of the Royal Hort. Society of England, you must have noticed that this is most always one of the chief specimen plants in bloom, and pot grown.

Ipomœa Horsfalliæ, Thompsoni, and *Leari* are good either in pots or planted out, with growth and blooms in proportion to their root room.

Nepenthes distillatoria, as a plant only.

Passiflora racemosa, either in a pot, box, or planted out; if planted out it makes more growth and has more blooms.

Quisqualis indica, grow it in a box.

Stigmaphyllon ciliatum does well in a box.

Thunbergia laurifolia and *T. Harrisii* are two names for one plant, the proper one being *laurifolia*. It does well in a pot or box, but grows and blooms more when planted out.

Habrothamnus (properly *Cestrum*) *Newelli* grows fine in a box, and good in a pot.

Clematis indivisa, probably better in a pot or box than planted out.

Dipladenia hybrida in a pot. Lovely flowers, but sometimes very refractory as regards growing well.

Rhynchospermum jasminoides does very well in a pot or box.

Tacsonia Van Volxemi may be grown in a pot or box with fair results, but to have it in all its glory it should be planted out.

Lapageria rosea, grow it in a pot or box.

Pilogyne suavis, we don't recommend it for this purpose.

Tecomas mentioned are fine but we do not recommend them for a palm house.

Lonicera fuchsioides, not for a hothouse. It is hardy.

Gelsemium sempervirens, good for a cool house, but not for a palm house. Still at John L. Gardener's near Boston, there is a small greenhouse pretty well filled with this sweet little vine. It lives fairly well out of doors at Dosoris.

Hexacentris coccinea, Ipomœa Bronsoni, Mandevillea suaveolens, Myrsiphyllum asparagoides (greenhouse smilax), and *Solanum Seafortianum* are very pretty in their way, but not such vines as we would advise you to plant in a palm house. The *Cardiospermum hirsutum* and *Vitis heterophylla humilifolia* are hardy and not at all adapted for your purpose.

FANCY-LEAVED CALADIUMS.

I see A. Blanc & Co. advertising to furnish the readers of GARDENING five fancy caladiums for 50 cents. Where can I raise them best? If in the flower garden in the sun or partial shade from houses, or on the banks of my lily pond, and here in sun or shade from a large oak tree? Where and how keep the roots in winter? If in cellar in dirt or hung up dry like crinums?

L. C.

Get them. They love warmth, partial shade, and protection from winds. When received put them into small pots, one tuber in each. Keep them in a moderately warm place, give no more water than to keep the soil slightly moist, and avoid rushing them into growth. When they begin to grow give them more light, more ventilation and a little more water. After inuring gradually to outside temperature plant them out in a sheltered, slightly shaded place where the ground is somewhat moist in your flower garden; or repot them and grow them in pots on the shady side of the piazza or outside where you may have Rex begonias. As regards by the side of the pond, that is an experiment, and if the soil is not too cold and wet we would expect them to do well there, on the shady side of the oak. Much depends upon the strength of the plant and the variety; the finer bred kinds with highly colored, pelluci, almost greenless leaves are not well adapted for roughing it, but as they are quite expensive probably you won't get them. Winter them dry, much as you would gloxinias, and in a warmish rather than cold room. The tubers increase in size and multiply in quantity year after year. They are a good deal used as fine-foliaged pot plants in summer, also in the filling of windows and veranda boxes.

CALADIUMS, FANCY LEAVED.

O. G. B., Frankfort Springs, Pa., asks: "Are the fancy-leaved varieties suitable for veranda step decorations, position facing west, with no trees nearer than 60 feet, and if so, how large will they grow with fair care in such positions?"

Ans. Some of the commoner varieties such as Chantini, Bicolor splendens, Napoleon III and Belleymei, may grow well enough there; it depends a good deal on how they are brought up and the care they receive. If potted so as to make all of their growth out of doors, and they get abundance of water they can be grown there, but not to full size. Fancy caladiums, like Rex begonias, prefer thin shade, if you give them this say by the shelter afforded from near-by vines they will grow fairly well. Up close by the

piazza they will grow better and even on the piazza if not much darkened by vines they will do nicely. The size of the plants will depend on the age and size of the "bulbs," the number used in a pot, the size of the pot, and the general treatment. We have had very pretty stocky plants 2 to 3 feet high in 5 or 6-inch pots, and specimens 3 to 5 feet high in 12-inch pots or small tubs. Planted out in a bed in the garden in thin shade and where sheltered from strong wind they grow very nicely. What handsome plants they are. In Dreer's catalogue we find 50 distinct kinds offered for $10; Saul, Vaughan and others too offer them.

PITCHER PLANTS.

(*Nepenthes*).

These are among the most interesting and striking of tropical plants, easily grown in our hothouses, and always attract attention. They are mostly indigenous in the Indian Archipelago, with headquarters in the mountains of Borneo. But many of our finest varieties are hybrids of garden origin, America leading in this direction. Some twenty to twenty-five years ago in Mr. Such's nurseries at South Amboy, N. J., the late Mr. Taplin succeeded in hybridizing several species, getting seed from them and raising a multitude of these hybrid seedlings. A good many of these were sold to European nurserymen, who in time propagated them, named them, and "sent them out."

In all prominent conservatories and hothouses we now find pitcher plants grown in considerable numbers. They occupy wooden cabin-baskets and are suspended from the roof after the manner of orchids, every leaf tipped with a pendent pitcher, they are also grown as pot plants, their stems tied up to a stake and their pitchers hanging down all about them. Not unfrequently some varieties as *N. distillatoria*, in warm, moist greenhouses are trained along under the roof as vines.

The plants like a compost of fibrous peat and sphagnum moss, and good drainage. Much root room is unnecessary for they are not liberal rooting plants. Their roots are black or dark colored, and to an untrained eye look more dead than alive, they require the most careful handling though, for they are very sensitive to injury. The nepenthes are moisture loving plants, they like lots of water at the root, and daily syringings overhead, and a moist atmosphere at all times. Shade them from sunshine, at the same time grow them up as near to the shaded glass as practicable, for they love the condensed light, and such treatment makes them short jointed and many leaved, which in all well grown plants means many pitchered, every leaf carrying a pitcher. A night temperature of 65° in winter suits them admirably.

After the shoots are over a year old if they are getting too long to look neat, or too long jointed, or miss pitchering satisfactorily we generally cut them back and give the younger growths the room.

The pitchers should not be mistaken for flowers, they are simply ornamental appendages to the leaves, the flowers are small, greenish and inconspicuous, and are borne on racemes near the end of the shoots.

All of the pitcher plants are insectivorous, or rather they are insect traps. The pitchers secrete a sweetish fluid, and as soon as they are full grown their lids open and insects enter and partake of the liquid, and become stupified and fall into it and die. And the hairs inside of the pitchers are arranged in such a way, that while it is easy enough for an insect enter and sip it cannot back out, it has got to stay there and perish. But the idea that these insects are necessary in any way to the life of the plant is all nonsense; the cleaner we keep the pitchers and the freer from insects the longer they will last in perfection, on the other hand the more insects that enter the pitcher and die there, the sooner the pitcher itself decays.

Our illustration shows a young specimen of *Nepenthes Masteriana*, and was engraved from a photograph taken at Dosoris two years ago. This pitcher plant is a hybrid obtained by Veitch of London from crossing *N. sanguinea* with *N. distillatoria*, and we believe as its raisers claim that "this is indisputably the finest hybrid nepenthes yet obtained." Our picture shows the most striking young pitcher plant of any kind we ever saw. Its pitchers, of a deep red color, were exceedingly large, a foot rule dropped into them showed the smallest one to be 7 inches and the largest one nearly 11 inches deep.

Lest critics may turn to Veitch's catalogue, where this hybrid is shown with shorter and wider pitchers and a pair of deeply serrated wings, then look at our picture with its long handsome wingless pitchers, and regard them as totally different plants we would say: No, they are the same thing, Veitch's figure is that of a pitcher from a short leaf from a bud near the ground, ours of characteristic leaves of the plant when it had assumed vigorous growth, and ours are by far the finest. As regards this point Mr. William Robinson of the greatAmes Gardens, North Easton, Mass., and who has the choicest collection of these plants in the country writes:

"The basal pitchers vary much in their structure from those of stem leaves, and, this is why Veitch's picture (of a basal pitcher) is so very different from the one I send you [identical with those of the Dosoris specimen.—Ed.] by this mail."

GREENHOUSES IN NEW ORLEANS.

I am a practical gardener and have lived here a good many years, and I can assure you that we not only have permanent greenhouses but use them to the extent that we consider them indispensable. In some of the nurseries about the city where they have lean-to structures covered with moveable sash, the sash is taken off in summer. But the greenhouses proper, full span, three-quarter, and conservatory of which there are many in New Orleans, are permanent structures with fixed glazed roofs, and many of them have been here for twenty years. They are built of all kinds of material, but the best is first-class cypress and double-thick or ground glass. Unfortunately many of our city greenhouses have been built to conform with the architecture of the dwelling house and with no heed to the cultivation of plants, an evil often apparent when the house carpenter or architect, rather than the professional greenhouse builder or gardener, has the planning of such structures.

We have a light frame set about 18 inches or 2 feet above the glass, this is to support a canvas, cotton, or linen shading fixed on rollers and which can be raised or lowered by means of light pulleys and a rope. This shading admits plenty light and allows a current of air to pass through between it and the glass; thus helping to reduce the temperature in the greenhouse in hot summer weather. [The same thing is in use in the northern states in the case of greenhouses filled with odontoglossums, masdevallias and other cool orchids, for which it is so desirable to have the temperature as low as possible during the hot weather.—Ed.] It may also be lowered in winter to keep out frost. We likewise use a coat of whitewash shading on the glass in summer, renewing it from time to time. Of course a large number of our greenhouse plants are set out of doors in summer, still we keep our greenhouses pretty full all the time, having ferns, variegated leaved and other plants in them, and all grow beautifully. C. R. PANTER.

GREENHOUSE DOOR FREEZING TIGHT.—E. O. N. writes: My two outside doors to greenhouse fit tight and in freezing weather, especially at night, the condensed water runs on the inside and freezes the door fast to the sill and is almost impossible to open. How can I manage this?

Ans.—As your doors now are you cannot prevent the freezing. Having two doors to your greenhouse let one of them be shut up tight for the winter; to the other build a little porch or vestibule entrance, say 4x4 feet, with a door in front, both doors opening to the inside. As the vestibule will not be heated there will be no condensed moisture to run down on the inside to get frozen to the sill, hence the door will be always free and easy to open; and if the vestibule is tight no ice will ever form at the sill of the inner door, and you will never experience any trouble. The pathway of the greenhouse should slope gently back to the inside from the sill, and never, as we often find it, from the inside forward to the sill. The vestibule may be made of boards altogether, or with glazed sides as one may chose; we prefer it with glazed sides and a glazed roof, just like a part of the greenhouse.

SNAPDRAGONS IN WINTER.—Your note about these, page 155, reminds me of my old pit greenhouse in which I used to grow a number of snapdragons, also bleeding heart and *Deutzia gracilis*, all of which forced well in it, and I had only a coal oil lamp to heat it in very cold weather. Oh, me! if I had only had GARDENING in my young days would not my flowers have been gorgeous.

L. G. CHRISMAN.

Orchids.

ORCHID NOTES.

The proper way of ventilating orchid houses is of very much importance. A supply of pure air is necessary, but cold draughts are injurious and must be guarded against. A good way to ventilate is when the thermometer in the cool house indicates 55°; in the intermediate house, where the majority of the cattleyas are grown, 65°, and when it rises to 70° in the stove or warmest house, raise the top ventilators one inch, and, if the temperature continues to increase, gradually raise the ventilators till by noon, if it is not too windy, they may be raised to four inches at this time of the year—March. Gradually close them up again till by 3 o'clock or earlier they should be shut tight. In very cold and windy weather a chink to allow the impure air to escape is all that is necessary.

MASTERS' PITCHER PLANT [*Nepenthes Mastersiana*]

Never give side ventilation to orchids. English growers recommend *bottom* air, which is quite a different thing; it is given by means of sliding shutters below the hot water pipe line, and is an excellent method for lowering the temperature of the house, and as the air is warmed by the hot water pipes before it reaches the plants it is productive of no injury. Ventilation is not the sole means of keeping down the temperature; shading and damping down the floors and benches are other important factors. Where the greenhouses are in a range, a good way to change the air is to open the ventilators in the cool house and also open the doors of the several other compartments.

SHADING.—If the winter rains have washed the paint (white lead and naphtha) off the glass, and if the condition of the weather does not permit a renewal of the application, "scrim" or cheese-cloth can be run up along the glass inside the house. It is very cheap and suitable, but not sufficiently heavy for summer shading. In shading the idea should be not to exclude the sun's rays entirely, but to soften and temper them that they will not burn the plants. Different species require different degrees of shade, and a few species, *Dendrobium nobile*, *Sobralia* and *Phajus* in variety, and *Cypripedium insigne*, provided the greenhouse is kept moist and they are not too near the glass, do not need it at all.

The following orchids are in bloom on this place just now: *Coelogyne cristata*, which may be said to require generous treatment. When the specimens get too large it is better to divide them.

Brassavola glauca, which has pale green flowers with a large white lip; it does well on blocks. *Oncidium sphacelatum*, a reliable old species with yellow flowers; it does best with basket culture. *Phajus grandifolius*. We have a very fine lot of this fine old orchid just coming into bloom; I pot it in a compost of two-thirds peat fibre and one of sphagnum moss, with about two inches of drainage. *Cypripedium Boxallii* and *C. Pitcherianum*, which is a fine variety of *C. Harrisianum* and often blooms twice a year. *Cattleya Lawrenceana*, one of the most beautiful cattleyas extant, and not yet plentiful; color is a rich purplish crimson of the shade of some of the finer forms of *Lælia purpurata*. Grow it in baskets in an intermediate temperature.

Orange, N J. WM. FITZWILLIAM.

Roses.

ROSES IN A RESIDENCE CONSERVATORY—BEGONIAS.

I found from experience that my roses did not do well under double glazed sash. I have now removed the inside glass, but one of our florists informs me that it will be impossible to be successful with roses in my conservatory. It is properly heated with hot water and is located on the south-east of my house, where it gets the sun all day. He claims that the sun's rays do not strike the roses properly through the perpendicular glass on the sides and the quarter-inch thick ribbed sky light glass on the top does not give them the right kind of light. We have had some roses but nearly all have been malformed and imperfect, but the bushes seem healthy and are free from aphis, red spider and mildew and although I have had the inside glass out only two days the plants seem to look better already. If roses can be grown successfully I want to accumulate young plants for next winter. With the new conditions I cannot see why they will not do well. I love the flowers and am willing to put plenty of work on them but want success. My wife is a crank on begonias (and by the way who has the finest selections of the latter?) and I ditto on roses, and if the latter can be successfully grown in our conservatory we will make a specialty of the two. A. L. W.

DesMoines, Iowa.

Double glazing is bad for roses. Rose bushes planted on the front bench and next the glass should give you pretty nice flowers though not equal perhaps to regular greenhouse blossoms, and while Papa Gontier and some other easy-to-grow sorts may bloom beautifully, Perle des Jardins, American Beauty and some others may be disappointing. How well the roses may do there and what varieties are best suited for the place is a question of experiment largely. But as you have a propagating corner in your bench, strike a lot of cuttings anyway, you will need the plants to set out in a bed in the garden in summer for late summer and autumn blossoms. Lots of tea roses grow and bloom very prettily in this way.

About begonias. Write to Storrs & Harrison Co, J. C. Vaughan, Henry A. Dreer, G. R. Gause & Co., Siebrecht & Wadley, and others advertising greenhouse plants in GARDENING for their catalogues of plants.

GARDENING

WILLIAM FALCONER, Editor.

PUBLISHED THE 1ST AND 15TH OF EACH MONTH

— BY —

THE GARDENING COMPANY,

Monon Building, CHICAGO.

Subscription Price, $2.00 a Year—24 Numbers. Advertising rates on application.

Entered at Chicago postoffice as second-class matter.

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All communications relating to subscriptions, advertisements and other business matters should be addressed to The Gardening Company, Monon Building, Chicago, and all matters pertaining to the editorial department of the paper should be addressed to the Editor of GARDENING, Glen Cove, N. Y.

GARDENING is gotten up for its readers and in their interest, and it behooves you, one and all, to make it interesting. If it does not exactly suit your case, please write and tell us what you want. It is our desire to help you.

ASK ANY QUESTIONS you please about plants, flowers, fruits, vegetables or other practical gardening matters. We will take pleasure in answering them.

SEND US NOTES of your experience in gardening in any line; tell us of your successes that others may be enlightened and encouraged, and of your failures, perhaps we can help you.

SEND US PHOTOGRAPHS OR SKETCHES of your flowers, gardens, greenhouses, fruits, vegetables, or horticultural appliances that we may have them engraved for GARDENING.

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BUTTED GLASS, ONE OF ITS EVILS.—Mr. C. H. Allen, of Floral Park, L. I., one of the best carnation growers near New York, built a new greenhouse last year, using the butted glass in glazing. He likes the system very well, except in one point, the winds drive the sand and dirt in at the joints between the panes, and they adhere to the moisture on the inside of the glass, looking and being both messy, and causing more shade than is desirable; and this dirt cannot be hosed off the glass till there comes a bright morning, for any attempt to wash it off in dull or moist weather would wet the plants underneath, causing body damp and mouldy flowers. The glass in his older greenhouses glazed with lapped glass was cleaner than that where the butted system was in use.

NOVELTIES VS. STANDARD VARIETIES.—No matter whether it be in the matter of vegetables or fruits or ornamental plants or flowers, place your dependence for crops on standard varieties only, never give them up to make room for some lauded, untried novelty. But don't let this disparage the novelties in the least in your estimation, get and grow every likely one you feel interested in, taking it on probation rather than as a crop, and after having obtained a satisfactory practical knowledge of it, grow or reject it the next year as its merits or demerits may suggest.

TUBEROUS BEGONIAS IN THE FLOWER GARDEN.—Mr. Robert Caie of Yarmouth, Nova Scotia writes: "If you should visit Yarmouth next summer we will introduce you to as fine a bed of begonias as you have seen on this side of the Atlantic. We are indebted to Pitlochrie, Scotland, for the idea that they would flourish in outdoor beds here. I reasoned, if they grew there, why not here? My gardener thought they would not, but they have, and every American visitor we have had here declared that they had never seen any begonias as handsome." We are glad to know they do so well there. Sometimes, in the northern and eastern states they behave very encouragingly, at other times exasperatingly. The cool mild summers of Nova Scotia suit them admirably.

THOMPSON'S GARDENER'S ASSISTANT is we consider, the best all round book on practical gardening in the English language, from first to last it is the voice of mature experience. It was one of the text books of our apprentice days and it has been an oft consulted stand-by ever since. But that edition is get'ting old; varieties of fruits, flowers and vegetables have changed a good deal since it was written, so too have mechanical appliances, construction, etc. It will be good news to many a one however, to know, that it is now undergoing a complete revision by Mr. A. F. Barron of Chiswick, the worthy successor in knowledge and practical experience of the great Robert Thompson, and we are satisfied that the new book will resume its former position as the sun in the firmament of horticultural literature.

AN UNGALLANT EDITOR is our brother of *Gardening World*. He tells us: "Mr. F. Schuyler Mathews some months ago declared that true blue was unknown amongst flowers, as nature had not the color on her palette. A horticulturist seems to have found true blue judging from the above name (Heavenly Blue Morning Glory) *he* gives to a variety of *Ipomœa*." The plant in question is not a variety at all but *Ipomœa rubro-cœrulea*, a true species, and the English name "Heavenly Blue" was given to it by Mrs. Theodosia B. Shepherd, of Ventura, California, one of the most charming, enlightened, enthusiastic, and successful of America's lady florists. The name was a happy one too, aptly expressing the loveliness of these flowers as they appear in summer mornings in our sunny Southern and Pacific gardens.

BULB BEDS.—Don't be in a hurry uncovering them. But keep a sharp lookout upon them and don't let the hyacinths, tulips, or narcissus grow up through the mulching before removing it, in part at least; shoots that grow up through the mulching are bleached and will neither stand warm sunshine nor cold wind. The peabrush or wire netting laid over the beds to keep the hens from scratching them are as necessary yet as before and should be left; it won't hurt the growing bulbs. In the case of crocus, snowdrops, bulbocodium, Siberian squills and other very early blooming bulbs all rough mulching as leaves or straw should be removed, but any loose stuff, as fine manure or old leaf soil, may remain and the plants allow to grow up through it. In warm sunny spots the earlier bulbs will soon begin to show themselves.

WANTED A GARDEN MAN.—During the last four or five weeks we have had several applications from our subscribers for a man to take general charge of and do the work about a small suburban or city place, and because we did not know of men enough for all we had to disappoint several of the applicants The kind of man asked for is very well expressed in the following letter:

"Do you happen to know of a reliable man, fully capable of taking care of horses, cow, etc., also doing the general trimming up around the place in the gardening line, without being a professional in this latter respect."

If any lady or gentleman knowing such a man who is disengaged and can confidently recommend him, will send us his name, they will confer a favor on some other ladies and gentlemen desiring to engage such a workman.

PLEASURE AND RECREATION IN A GREENHOUSE.—Mr. E. O. Nathurst of Tennessee, an enthusiastic amateur gardener and very busy business man, writes: "I have my little greenhouse, 40x16 feet, in operation, and it is my sole recreation. My Marechal Neil rose, grafted on the Cherokee rose, has more buds than I care to count; my calla lilies with many buds will soon bloom; primroses and narcissus have been in full flower for some time; palms and agaves are growing nicely, and I have cauliflower, cabbage, beets, lettuce and radishes in flats and on benches. I feel that I rush into the season. [Make up a hotbed to relieve you of the lettuces and beets, and a cold frame for the cauliflower and cabbage; this will give you room to grow tomatoes, egg plant, peppers and flower seeds in flats or pots in the greenhouse, to be transferred to frames later on.—ED.] This is my first winter with a greenhouse to manage at spare times, and I enjoy it very much."

THE WINTER.—During the present winter we have had an unusual amount of fine, clear, open weather, but it hasn't been a mild winter by any means. We have had a good deal of hard and continuous frost, but very little snow or rain, in fact it has been a clean, dry winter. What its effect has been on plants is unknown yet; it is between now and April that plants show the effects of winter. By this time of year we often have Japanese witch hazel and naked flowered jessamine in bloom, but this season, so far, not a flower is open yet. Bamboos, —*Metake, aurea, Fortunei* and other reputedly hardy sorts that usually stand green till March have been killed to the ground a month ago. Although the stems are killed the roots are all right and will again throw up vigorous shoots next summer. And some of the more tender conifers, notably the Californian forms of *Abies concolor* have had their foliage considerably burned.

BEGONIAS.—E. G. Lodeman, instructor in horticulture, Cornell University, Ithaca, N. Y., has issued a list of over a hundred kinds of begonias which he has got to-

gether at the Experiment Station there. He writes us: "It is our intention to make this collection as complete as possible, the object being to get out a report upon this very interesting group of plants. The nomenclature of the begonia is sadly in need of straightening out and this will be one of the primary objects of the work which we have in hand." We are very glad indeed to know that this work has been undertaken and we ask our readers to please send to Mr. Lodeman slips, cuttings or rooted plants of any begonias they may have that you think he may not have, together with their names. We shall do all we can to help him. Begonias are among the most popular of window and greenhouse plants, and deservedly so, but their nomenclature except among the commoner kinds is woefully mixed up. Mr. Lodeman's chief aim in getting every begonia known in cultivation with us together is to get their names straightened but and afterwards keep them straight.

THE AMERICAN CARNATION SOCIETY held its fifth annual meeting in New York 20th and 21st ult. In connection with the meeting was an extraordinary display of carnation flowers, including all the leading varieties, also new seedlings, and other seedlings that were on exhibition a second or third time. The flowers shown were as fine as the art of man could produce. The prize varieties included: white—Lizzie McGowan, Alaska, Storm King, Uncle John and Hinze's White; light pink—Bridesmaid, Daybreak, William Scott, Mme. Diaz Albertini; deep pink—Tidal Wave, and Thomas Cartledge; in crimson—Meteor was alone; and Portia and Hector were the winning scarlets. Among the fancy flowers Kitty Clover, Buttercup, and Bouton d'Or were variegated with yellow ground; and Helen Keller, Chester Pride, and J. J. Harrison, variegated on white grounds. The committee on nomenclature reported that the names of over seventy new varieties had been registered for 1895-6! Well, it may be all right to register so many new names, and grow and disseminate the fair (we mustn't say sweet, for only a few of the carnations of to-day can claim much fragrance) debutantes, but a tenth of the number will never find popular favor, then what's the use of imposing them on the public? At this rate new carnations are becoming almost as numerous as new chrysthemums. Pres. F. Dorner said in the Society's amended list of carnations in last year's report the names of 550 varieties are given!

ABOUT BEES.

In the last issue of GARDENING "A. D. C." asks for some notes on bee culture. I have kept bees for twenty-five years for pleasure. Of course there has been some profit too, but a love for bees was the inducement to keep them. If A. D. C. does not know the A B C of bee keeping, I would not advise him to try to learn it from bee notes in any periodical, although if they are written by a practical bee keeper they must be interesting and instructive. Let A. D. C. begin by buying a good work on bee keeping and "Quinby's New Bee Keeping" (advised by the editor, page 168) is one of best. When he has studied a little let him get a colony of good Italian bees in a moveable comb hive, and here he should remember that whatever hive he selects he should use that kind altogether. It is bad to have several kinds of hives. There can be no interchanging of combs or fixtures. The Italian bees should be kept by a beginner in preference to the black ones because of the ease with which they may be handled. The black bees on being disturbed in opening the hive will run wild, sometimes leaving the comb altogether and clustering outside or under the hive, while the Italians, if carefully handled, remain evenly distributed over the comb and perfectly quiet. I have often held a comb covered with bees and watched the Italian queen in the act of laying, passing from cell to cell depositing an egg in each and paying no attention to the 'outsider." You can not do this with the black queen, nor even find her except rarely. The Quinby hive decribed in his work is easily made; there is no patent on it and it can be enlarged to meet the needs of the most prosperous colony or contracted to a single comb if so desired. If your Mississippi subscriber loves bees there are many pleasant hours ahead of him, perhaps some stings too, but perseverance will over come this last obstacle. P. F.

Market Gardener, West Chester Co., N.Y.

CATALOGUES.

The Storrs & Harrison Co., Painesville, Ohio, a 168 page catalogue of seeds, and a great variety of greenhouse plants, and ornamental trees and shrubs, fruit trees, bushes, and vines.

Frederick W. Kelsey, 145 Broadway, New York; a dainty catalogue of choice ornamental trees and shrubs, fruit trees, etc.

Wm. L. Swan, Oyster Bay, N. Y; flower and vegetable seeds, greenhouse plants and ornamental hardy trees, shrubs, perennials, roses, etc.

Wm. G. McTear, Princeton, N. J; a descriptive list of chrysanthemums.

Phœnix Nursery Co., Bloomington, Ill.; greenhouse plants, roses, ornamental trees and shrubs fruit trees, vines and bushes.

Parry's Pomona Nurseries, Parry, N. J.; making fruit trees, nut trees, bush fruits and vines a specialty.

Wm. Bull, Chelsea, London, Eng.

Currie Brothers, Milwaukee, Wis.; seeds and plants.

Lovett Co., Little Silver, N. J.

Sunset Seed and Plant Co., San Francisco, Cal.

Pitcher & Manda, Short Hills, N. J.

Green's Nursery Co., Rochester, N. Y.

I. L. Buchan, Sturgeon Bay, Wis.

Arthur J. Collins, Moorestown, N. J.

J. C. Suffern, Voorhies, Ill.

J. M. Kidd, St. Joseph, Mo.

G. C. Watson, Philadelphia, Pa.

E. J. Hull, Olyphant, Pa.

J. D. Imlay, Zanesville, O.

N. Smith & Son, Adrian, Mich.

F. S. White Seed Co., Des Moines Iowa.

O. A. E. Baldwin, Bridgman, Mich.

A. L. Wood, Rochester, N. Y.

The Fruit Garden.

WINTER APPLES FOR WISCONSIN.

H. Y. M., Milwaukee, asks for a list of winter apples suitable for Wisconsin, and the name of a good near-by nursery where they can be obtained.

Ans. The American Pomological Society recommend Wealthy, Limb r Twig, and Golden Russet of Western New York as the best winter apples for Wisconsin. An eminent pomologist from your part of the country recommends:

WEALTHY.—Large, dark crimson, most excellent; ripening from November to February.

WOLF RIVER.—Very large, greenish yellow shaded with crimson, very good, great bearer, ripe mid-winter.

MCMAHON'S WHITE.—Large, nearly white, very good, ripening in November and December.

LONGFIELD.—Medium to large, yellowish green with red streaks or blush; quite good; November into winter.

GOOD PLEASANT.—Not unlike the Longfield.

HIBERNAL.—Large, showy, red striped apples good for desert or cooking, November and December.

If your country place is near Milwaukee or in about as equally favorable location our entomogical friend suggests the following varieties as being very likely to live well and bear good fruit in your orchard.

WALBRIDGE.—Medium, red striped, good mid-winter.

UTTER.—Large, red, good, early winter.

GOLDEN RUSSET.—Medium, russet, winter.

PEWAUKEE.—Large, yellow shaded red, late fall into winter.

NORTHWESTERN GREENING.—Pale green tinted with red, excellent, winter.

MALINDA.—Greenish yellow with dull red side, good, mid-winter.

SCOTT'S WINTER.—Medium, red striped, excellent.

As a second choice of winter varieties for Wisconsin the American Pomological Society recommends:

BALTIMORE.—Medium, red and yellow.

BLUE PEARMAIN.—Large, red.

EDGAR RED STREAK.—Large, red streaked.

FAMEUSE.—Medium, red streaked.

JEWETT'S RED.—Medium, red.

ROMAN STEM.—Medium, yellow, russet.

TALMAN SWEET.—Medium, green and yellow.

WESTFIELD SEEK-NO-FURTHER.—Large, yellow and red.

WILLOW TWIG.—Medium, yellow and red.

WINE.—Large, yellow and red.

As regards a near-by nursery, never let "near-by" have any weight when you want trees, but send direct to some responsible nurseryman for what you want, no matter whether his nursery is ten miles or ten hundred miles from your home, we speak from experience. But don't buy from agents or peddlers no matter from whom they come; send direct to the nursery. Several A1 nurseries advertise fruit trees in GARDENING.

BERRIES.

The following varieties and number of each well cultivated, will give a succession throughout the season and furnish an ordinary family with wholesome fruit, fresh, canned, dried, or preserved during the entire year; 50 blackberries, Ancient Briton, Snyder; 50 black raspberries, Palmer, Ohio, Gregg, Nemeha; 50 red raspberries, Marlboro, Cuthbert, Loudon; 25 raspberries, Shaffer's Colossal; 25 gooseberries, Houghton, Downing; 50 currents, Red Dutch, Victoria, White Grape, 12 grapes, Moors Early, Worden, Brighton, Delaware, Concord; 300 strawberries; Warfield (p), VanDeman (s), Michels (s), Haverland (p), Crescent (p), Beder Wood (s); "p" means pistillate or female, and "s" staminate or male. The varieties having only pistillate flowers cannot of themselves bear a crop of berries, the flowers must be pollenated from the staminate flowers by means of winds or insects, and therefore is it, that

in order to secure an uuerring crop, in setting out a plantation of strawberry plants, if we use pistillate sorts, every third row should be of a staminate variety. The staminate flowers are perfect in themselves and need no outside aid to help them set a full crop of fruit.

The above varieties are well tested and adapted to most localities. There are other good kinds having special merit for special locations and taste

Whatever varieties are selected good roots and vigorous plants are essential. There are "scrubs" in plants, as well as in animals, with same difference in values. Poor plants are dear at any price. Buy plants direct from responsible growers. Set all bush berries in long straight rows, seven feet apart, and plants three feet asunder in the row. Set strawberries in rows 3½ feet apart and two feet apart in the row. Long straight rows are eas ly cultivated and kept free from weeds. Extra care in all details of the garden will increase size and quality of fruit and stimulate a love for the work.

Sparta, Wis. M. A. Thayer.

RASPBERRIES.

C. E. S., Chicago, asks about the strawberry-raspberry (*Rubus sorbiolius*), the golden mayberry, the Japanese raspberry and the Japanese wineberry.

Ans. The strawberry-raspberry we cannot speak of from personal experience, and we are not sure of what kind you refer to as Japanese raspberry, but we grow the other two. The golden mayberry is very early fruiting, coming in with strawberries, and of pretty appearance and mild flavor, but the plants not being very hardy above ground need burying in winter. It needs further testing. We believe we have grown the wineberry longer than any one else in the country. Some people like it very much and others cannot abuse it enough. It is hardy in some places and in neighboring ones it may perish in winter. We don't think any of them are hardy enough for Chicago, but by laying them down and burying them in winter you probably can grow them. Try a few at a time, and by way of experiment, rather than a full crop to begin with.

The Fruit of Prunus Simoni.—Please say to Mr. Isaac Hicks that if he will first remove the skin from this fruit he will change his opinion (page 121), as the bitter taste is almost entirely contained in the skin. H. A. B.

Spokane, Washington.

The Vegetable Garden.

LIMA BEANS.

About the end of the first week in May the Lima bean "patch" may be got ready. I set the poles 4 feet between the rows and 3½ feet apart. I dig a bushel of the finest manure I have around each pole, mixing it thoroughly with the soil. If the soil be heavy the hill can be raised well up. If it be light or sandy a slight hill is best. Cedar poles make a very neat appearance and should be used in preference to any other if they can be readily obtained. If you cannot get them any other pole will do, giving the preference to those having rough bark. The finest crop of Limas I ever saw was on a lot of poles, hardly any two of which were alike.

Nothing is gained by planting Lima beans too early. We usually have in this section a cold rain storm about the 10th of May. If you are ready to plant when the weather clears up after that storm you will be as well off as those who "rushed" them in before it. Before raking off the hills I apply a good handful of superphosphate and about a small tablespoonful of nitrate of soda to each hill. Then I plant about eight beans around the pole, "right side up with care." It is much more satisfactory to have three or four beans to spare in a hill than to transplant or make a second sowing. Limas should be gone over frequently and the laterals pinched to keep them within bounds, and towards the end of the season when there is not sufficient time for the pods to fill before frost, they should be stopped and the strength of the vine utilized in filling the remaining pods. The old time favorite, the Large White Lima, is now being rapidly superseded by the "Potato Lima," a variety with much smaller and better filled pods. A point quickly appreciated by the bean buying public. P. F.

Market gardener, Westchester Co., N. Y.

DELICATA SQUASH.

E. J., Va., wants to know when to plant it for winter use. *Ans.* "Plant about the middle of May. They are as tender as tomatoes. Near the mountains where I live we generally have a frost about that time, but as soon as all danger from that is past we plant squash and pole Lima beans. Bunch Limas are a little more hardy and so are bunch squashes. We plant 5 feet apart each way.

Rockingham Co., Va. L. G. C.

In the warm parts of Virginia, provididg the ground is moist enough to give the vines a good start, il sowa in June, they will be in time enough for winter.

Tomatoes.—H. A. B., Spokane, Wash., writes: "I want from 200 to 300 tomato plants for stocking my greenhouse, which will be finished from March 1 to 10. Can you assist me in obtaining the address of one who can furnish them for me? I think they can be safely shipped in flats this distance, do you?"

Ans. Write to Amos Bowerman, Medical Lake, Washington; if he cannot supply them he probably can tell you from whom you may get them and all about the best variety to have and price to pay. No, we don't think you could get young tomato plants from any one east of the Rocky Mountains, that would be worth planting by the time they could reach you. Young tomato plants are mostly grown for local trade and short distance shipments; they are seldom grown stiff and sturdy enough to be able to stand a one to two thousand mile journey. Besides, you will gain very little. Start some seed in a hotbed or your greenhouse at once, and likely enough your seedlings will overtake plants obtained from a far-away state.

Sickness in Greenhouse Lettuce.—A Reader writes. "I had lettuce planted in my greenhouse and there is a sickness on it, the top of the leaves rotting, and more so the center than the outside leaves. Black-seeded Simpson is the variety grown. How can I prevent it? What temperature is needed in the greenhouse for lettuces and radishes and what varieties of these would you advise me grow?"

Ans. The rotting is caused by some local condition unknown to us. We should advise you to remove the old soil and use fresh earth, grow the plants as near the glass as you can consistently, and in a light airy house—ventilation given at the top only, and with a night temperature of 45° to 50° in mid-winter, and 55° to 60° now. Give the plants plenty water, but keep them dry overhead and never water them late in the day in winter or in hot sunshine in spring. While we can yet get a crop of lettuces and radishes from the greenhouse, after this time of year we usually plant them in hotbeds. For winter work we like Boston Market, Rawson's Hothouse, and Denver Market; after March sets in we can grow most anything, and we plant Rawson's, Denver, Big Boston, and Improved Salamander; it is now a matter of taste for your own table, or what the people like best in your own market. As a long radish we like Chartier, but market gardeners are partial to the Long Scarlet Short Top; of turnip radishes we have so many of equal merit that it is hard to chose one from among them; besides, their names are a complete muddle. Earliest Carmine Forcing and Extra Early Deep Scarlet Turnip Forcing are good. But just as soon as a turnip radish is big enough to eat, pull and use it, for it soon spoils.

Hotbeds are now in order. The proper place for one is in a warm sunny spot facing south or southeast, and sheltered from the north and west winds, and if on rising ground sloping to the south, so much the sunnier and warmer. Hotbeds are of two kinds, one a pit of manure in the ground with frame above ground level; the other on a heap of manure above ground. Where the surface and under drainage are perfect, the pit-bed is best, handiest and most economical; where the drainage is poor and water apt to collect in a pit, then it is necessary to make the bed above ground. In making a hotbed use fresh manure well wetted, and have it well shaken up and steaming hot all through. If you put in the manure cold and tread it down firmly, no matter how fresh it may be it will not heat properly; if it is too dry it will soon burn out. Another point to observe is after making up the bed don't put the earth on till the heat rises again in the manure, which, if the sashes have been put on and kept tight, it will do in a day or two. About five inches deep of loam over the manure is deep enough for most anything, to plant lettuce in or sow seeds, in fact less will do for seeds. After planting or sowing in a hotbed a good deal of steam is ap to collect in it, which, if it does not find escape, will rot the plants; leave a little chink of ventilation on the hotbeds even at night, to allow this steam to escape, and at the same time cover the sashes and about the frame well with mats, sedge, old carpeting or light shutters.

Mushrooms.

MUSHROOMS.

S. E. C., Waterloo, N. Y., writes: "I procured my spawn from —— —— but if you manufacture the spawn I shall be glad to try some of yours. I shall put in beds from all the makers in order to find out if one is more productive than that of others. There are various compartments in my house, one 300 square feet I have nearly finished planting. I have four or more times that space to fill."

Ans. No, we don't either manufacture or sell mushroom spawn and haven't the least pecuniary interest it as made or sold

[CONTINUED PAGE 188.]

New Seedling Chrysanthemum

WM. SIMPSON.

Certificate of Chrysanthemum Society of America, November 2d, 1895.
First Premium for best Pink American Seedling, Pennsylvania Horticultural Society Exhibition, November 5th, 1895.
Certificate of Merit, Pennsylvania Hort. Society, November 5th, 1895.
Silver Medal for best American Seedling, Pennsylvania Horticultural Society, November 5th, 1895.

See Garden and Forest,	-	Nov. 20th, page 465.
" Florists' Exchange,	-	Nov. 23d, " 1144.
" American Gardening,	-	Dec. 14th, " 415.
" American Florist,	-	Jan. 25th, " 652.
" Gardening,	- - -	Feb. 1st, " 151.

It is the **EARLIEST LARGE CHRYSANTHEMUM GROWN.** Has been cut as early as Oct. 15th; flowers measuring 11 inches in diameter. A good strong healthy grower, stiff stem, 4 to 5 feet high, with clean foliage.

Will be sent out March 15, 1896. PRICE, 60c each; $6 per doz.

JOSEPH HEACOCK Wyncote Pa.

And for sale by Henry A. Dreer, 714 Chestnut Street, Philadelphia; Henry F. Michell, 1018 Market Street, Philadelphia; Geo. C. Watson, 43 N. 10th Street, Philadelphia; E. G. Hill & Co., Richmond, Ind.; Nathan Smith & Son, Adrian, Mich.; The Cottage Gardens, Queens, L. I., N. Y.; Henry G. Standen, Haverford, Pa.; A. Blanc, Philadelphia, Pa.; Robt. Craig, 49th and Market, Philadelphia.

A Woman Florist.

5 EVERBLOOMING ROSES Red, White, Pink, Yellow and Blush

FOR 10 cts

ALL WILL BLOOM THIS SUMMER

Send 10 cents for the above. Five colors of Roses. I want to show you samples of the Roses I grow, hence this offer.

8 of the loveliest, fragrant, everblooming Roses, 25cts.
8 of the finest double Geraniums, all colors, 25cts.
8 Most charming single Geraniums, all colors, 25cts.
8 Carnations, the "Dying flower," all colors, 25cts.
8 Gloxinias varieties Tuberous double and single, 25cts.
8 Prize winning Chrysanthemum, show blooms 25cts.
10 Packets Flower Seeds, a choice assortment, 10cts.

SPECIAL OFFER.—The above eight collections containing 33 Plants and 10 packets of Seeds mailed to any address for $1.25. **We guarantee satisfaction.** Once a customer, always one. Catalogue free. Address,

MISS ELLA V. BAINES, SPRINGFIELD, OHIO

J. W. Elliott

Landscape Architect

Planting plans and specifications furnished and visits for consultation made. References and full information on inquiry.

Pittsburgh, Pa.

1838 300 Acres NUT AND FRUIT CULTURE 58 Years 1896

MOST PROFITABLE than WHEAT or COTTON, with less LABOR and RISK. Send for catalogue illustrating and describing best varieties. ALPHA, the earliest Chestnut, opens Sept. 4th to 14th without frost; RELIANCE, the most productive; PARRYS' GIANT, the largest, six inches around. PARAGON, RIDGELEY and others. STARK, the perfection of early Apples. BISMARK fruits at two years' old; PARLIN'S BEAUTY the handsomest; LINCOLN COBBLESS, KONIGE, GOLDEN RUSSET, ANGELL and other Pears. JAPAN QUINCE COLUMBIA, a handsome shrub, producing a very large fruit, unequaled for jelly.

SMALL FRUITS, EARLY NOVELTIES and VALUABLE introductions. JAPAN BERRIES, FRUIT, SHADE and ORNAMENTAL TREES.

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and Ornamental trees, Nursery grown. 50 Choice Evergreen, Pyramids $2. 100 Ornamental trees, 6 varieties, $2. 6 other $3 and $10 bargains. 10 Norway Spruce, 6 high, $8. 100 Pots 12 inches $10. All other varieties at lowest prices. Local Agents Wanted. Send for Illustrated Catalogue **FREE.**

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Choicest Seed, 25c. per pkt.

Most complete collection in the world. 500 varieties to select from. Send for list.

THESE 20 AS SAMPLE, FOR $1.00.

Olympus, Zulinda, E. Hemock, Golden Dawn, Golden Gondola, Spaulding, Crystallina, Freedom, Tilliac, Pitcher, Mrs. S. T. Murdock, Princess May, Silver Cloud, W. A. Bryant, Mrs. R. Boon, Yellow Queen, E. Dallimore, Wm. Seward, L. D. Black, Mrs. Parker, Lady Playfair.

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GRASS IS KING

We are the only seedsmen making the growing of turf seeds, grasses and clovers a specialty. For Extra Lawn and Clover Mixtures that stand the test of time without renewal. Prices dirt cheap. Mammoth catalogue and 3 pkgs. Grass and Clover free and full for postage. Catalogue alone 4c.

JOHN A. SALZER SEED CO., La Crosse, Wis.

GRAPE DUST KILLS RUST and MILDEW

Sold by the Seedsmen.

Made by **BENJ. HAMMOND, Fishkill-on-Hudson, N.Y.**

30 Strawberry Plants, 6 each **Oriole, Ideal, Giant, Tubbs** and **L. Thompson**, postpaid, $2.50. 1000 best 4 kinds, purchaser's expense, $2.50. 12 **Miller Raspberry**, 10 **Peach trees** and 1 **Ridgely Chestnut**, postpaid, $2.50. Millions of Plants, Peach, Apple, Pear and Nut trees.

CHAS. WRIGHT, Seaford, Del.

If you like Gardening please recommend it to your friends.

by anybody else. It is very plain to see from your letter that you are a beginner in growing mushrooms; two or three years from now, if you stick to mushrooms so long you will write very differently. While we know of several people who make part of the spawn they use, W. Forbes of Rhode Island is the only one in the country so far as we know, who makes it for sale. Then who are the manufacturers you refer to? Perhaps you mean dealers who sell spawn, if you do, please remember they are not the manufacturers, nor do they get certain brands of spawn specially made for themselves as a dry goods merchant may have a certain pattern of cloth, but probably if you buy spawn from half a dozen different dealers, likely enough all of them got their stock from the same manufacturer, just as they get certain lines of seeds from the same seed grower. If this should be so, and your tests showed very different results, just think of the light you would be in in the eyes of those dealers; or if you made a public statement that one man's spawn was worthless while another's was most potent, when in fact the spawn in both instances was the same, don't you think some one would have a just claim for damages? We have been growing mushrooms for years and have had a full share of success, medium and failure in the business, and we have tested several makes of home and imported spawn, and long experience has taught us moderation and caution in expressing an opinion as to their merits.

MUSHROOMS, AVERAGE YIELD.—W. Scott, South 47th street, Philadelphia, asks what is the average yield to the square yard per year? *Ans.* A fair average is 3-5 of a pound per square foot per bed, and as most growers make two beds or plantings a year, the average for both crops would be 1 1-5 pounds. But there is no crop that we know of that you can approximate less closely than you can mushrooms. Of course we have seen some very big crops, far heavier than 3-5 of a pound to the foot, but then we also have seen beds without a single mushroom, and with the same grower.

VERBENA AND LILLIPUT ZINNIA SEED. Readers of GARDENING wishing to try my Royal Splendor Verbena and Double Lilliput Zinnias mentioned by Mr. W. C. Egan in Feb. 15 issue of GARDENING, can secure seeds. Verbena mixed colors, Pkt. 20c. Zinnias mixed colors, Pkt. 10c. One Pkt. each 25c. **A. B. HOWARD, Belchertown, Mass.**

THE PARAGON CHESTNUT. The Kind to Grow for Profit. **2,000 TREES FOR SALE.** Address the Introducers. **H. M. ENGLE & SON, Marietta Pa.**

PALMS grow easier from seed than you think. Try it. One collection of 5 different varieties, including cultural directions 20c. One collection of 12 different varieties of imported flower seeds in plain packets, 50c. **J. L. SCHILLER, Rutherford, N. J.**

PEACH TREES By the 100, 1000 or in car load lots.
TREES AND PLANTS. All kinds. It will pay you to write for prices.
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CHRYSANTHEMUMS BY MAIL Catalogue Free. WM. G. McFEAR, Princeton, N. J.

When you write an advertiser please state that you saw the adv. in GARDENING.

6,000 BEGONIA NIVEA AT REDUCED PRICES

THE NEW EVER-BLOOMING APPLE BLOSSOM BEGONIA.

(See illustration page 163 of GARDENING, for Feb. 15.)

We have a large stock of this grand winter-blooming and summer-bedding plant, it being covered with elegant panicles the whole year round, making it a valuable market plant. In color it is of a delicate pink when in bud, expanding through lighter shades to snowy whiteness when in full flower, giving it an apple blossom appearance that is unique and what the ladies call "just lovely." It is a most vigorous grower, propagates easily and has come to stay. The plants are well branched, well established, first-class in all respects and sure to give satisfaction. Up-to-date florists should secure some of this stock for their floral work. We guarantee safe arrival in good condition and extras added to all orders of one dollar and upwards by express. In order to make room and to place it in reach of all we offer 6,000 plants only at reduced rates if ordered before April 1st, 1896; after that date prices will be advanced.

CASH WITH THE ORDER. 50 plants at 100 rate.
No order for less than 100 per Express.

	MAIL Each	PER EXP. Each	Doz.	100
From 2½ in. pots, stock plants	$0.25	$0.20	$1.00	$4.50
From 2½ in. pots, each strong branched	.30	.25	1.25	6.50
From 4-in pots, large, bushy, in bloom	.35	.30	1.50	8.50
From 5-in. pots, fine specimen plants	.50	.35	2.50	12.50
From 6 in. pots, very fine plants		.40	3.00	15.50
Begonia S. Rosea, 2½ in.	.25	.20	1.00	6.00
2½ in.	.30	.25	1.25	7.00
New Geranium Beauty of Auburn, the finest variegated Geranium we have ever seen, by far the best for vases, baskets, etc.; flowers pink in great profusion all summer; strong plants.	.30	.25	1.50	12.00

J. ELLETSON, Floral Nurseries, AUBURN, N. Y.

GLEN COVE, N. Y., Feb. 11, '96.

MR. J. ELLETSON, Auburn, N. Y.:—
MY DEAR SIR. The begonias B semperflorens nivea and rosea you sent me some months ago have been in perpetual bloom ever since, and they are more loaded than ever. Without the least hesitation I will say they are the most beautiful and floriferous plants in the way of begonias now at Dugorls and we have many. They are little beauties. Very sincerely yours, WILLIAM FALCONER.

Centaurea Margaret.

A very handsome plant which grows about 18 inches high, and produces large, pure white flowers, (our illustration represents one in natural size), of the sweetest fragrance. Being produced on long, stiff stems, the flowers are most admirably adapted for bouquets, vases, etc., especially since they keep in good condition for a week after being cut. It is as easily grown as a Bachelor's Button, to which family it belongs. Pkt. 100 seeds 75c.

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Tons and Tons of Onion, Beet, Cabbage, Cucumber, Melon, Lettuce, Radish, Squash, Tomato, Turnip Seed, etc., and thousands of bushels of Beans, Corn, Peas, Seed Potatoes, etc., and any quantity of Flower Seeds, Bulbs and Plants are offered at astonishing low prices. Every person intending to purchase $5.00 worth of Seeds, Bulbs, Plants, Potatoes, etc., should send for my "*Thacher's Wholesale Catalogue*" filled with all the best, and prices are from 50 to 80 per cent. cheaper than any other Seedsman will make on Bordering $5.00 worth or more, is why I can supply you at wholesale. Two or three neighbors can club together and make the order $5.00 and get these prices. Do not buy until you see this *Great Book*. It's free to all. Nothing published like it. Write for a copy today. **F. B. MILLS, Seed Grower, ROSE HILL, N. Y.**

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WM. H. HARRISON & SONS,
LEBANON SPRINGS, N. Y., U. S. A.

BLOOMINGTON (Phoenix) NURSERY. . . . 600 Acres. Thirteen Greenhouses.
Trees AND Plants
We offer a large and fine stock of every description of **Fruit and Ornamental Trees, Shrubs, Roses, Vines, Small Fruits, Hedge Plants, Fruit and Forest Tree Seedlings.** Priced Catalogue mailed free. Established 1852.
PHOENIX NURSERY COMPANY,
(Suc. to Sidney Tuttle & Co.) **Bloomington, Ill.**

GRAPEVINES, For 25c. in stamps I will mail my "Treatise on Grape Culture" or 12 Best Varieties, 25 each Niagara, Pocklington, Delaware, Brighton, Worden and Wilder, best white, red and black varieties, or choice of same, with book free; or 20 Concords and book. Order now. Will mail book at once when in earth spring, postpaid. Safe arrival in good condition guaranteed. Price list free.
J. H. TRYON, Willoughby, Ohio.

ALL THE 1896 NOVELTIES Send for catalogue. A. BLANC & CO., Philadelphia, Pa.

Money Found

By buying from us. If you want
Fruit Trees, Roses, Shrubs, Etc., drop us a postal card. Do it now and we will send FREE our '96 CATALOGUE. It is full of the choicest kinds.
Globe Nursery CO., Rochester, N. Y.
When writing mention Gardening

SAVE MONEY ON FRUIT PLANTS. Strawberries a specialty. Plants Immense stock. A No 1 plants. 50 best varieties strawberries. Also best Raspberries & Blackberries. We ship plants to the 10,000 to all sections of the U. S. Secure vines and save many hundreds money. Nurseries buy by the ton to sell again. Our '96 catalogue tells WHY. We mail sixty choicest sorts Strawberry Without Pay, cash, we send Free a Biggle Berry Book, with $10.00 order.
O. A. F. Baldwin Wolf, Bridgman Mich.

TREES Evergreens, Hardy Shrubs, Azaleas, finest Rhododendrons, Japan Maples, Roses, Hedge Plants, Vines, Herbaceous Plants, Choice Fruits. Low Prices. CATALOGUE ON REQUEST.
Fred. W. Kelsey, 145 Broadway, New York.
Please mention this paper.

BARGAINS Blue Spiraea 8c. Crimson Spiraea 8c. Double Golden Rudbeckia 8c. Vitis Coignetiae 40c. Crimson Rambler Rose 2 c. all new hardy plants for 21 by mail. A. BLANC & CO., Philadelphia, Pa.

NEW, RARE and BEAUTIFUL PLANTS, BULBS and FRUITS

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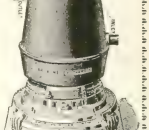

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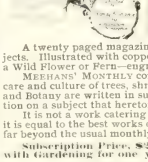

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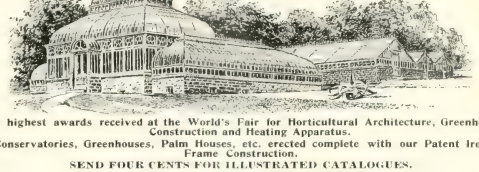

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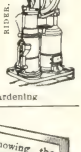

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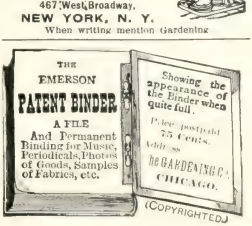

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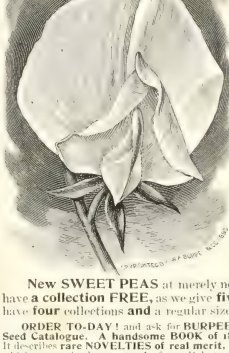

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The Flower Garden.

LILIES IN A NEW JERSEY GARDEN.

Our very beautiful illustration of *Lilium Brownii* as it appeared last summer in Mrs. Mayer's cottage garden at Mountain Side Farm, N. J., should cheer the most despondent of us to increased efforts in growing lilies. We saw these lilies when they were in bloom, and a delightful sight they were, and Mrs. Mayer was kind enough to have them photographed for GARDENING. These lilies are hardy, long-lived, and less susceptible to disease than many kinds, and their flowers are large, deep and showy, and in color white tinged on the outside with purple. Probably there isn't a reader of GARDENING who doesn't love lilies, and perhaps not one who cannot grow them just as good as these in the little New Jersey cottage garden, any way we can try. And that we may profit by her experience Mrs. Mayer has, in the following letter, very kindly given us her method of cultivation.

Regarding the cultivation of *Lilium Brownii*, we treat all our lilies in about the same way. We first have a hole dug about 18 inches deep, then put into it a layer of good strong soil without any stimulating material, such as fresh manure or fertilizer, and preferably made of rotted sod, over this put an inch layer of sand, on which place the lily bulbs and cover them with another layer of sand about half an inch deep. We think that they take root more easily in this way, and that it keeps them fresh and clean and more free from decay in case they lay dormant one season, as lilies sometimes do, then we fill the rest of the hole with good rich soil composed of well rotted manure, a little sand and peat or leaf mould, as some lilies require peat while others are better without it. Our soil here is very sandy, and with the treatment above all the bulbs we have tried so far seem to do extremely well.

In one of the borders in my little cottage garden [See front page picture, August 15, 1895.–ED.] the plants of *Lilium superbum* have always grown to the height of ten feet, each season. We also grow the western *L. pardalinum*, which is much dwarfer than *superbum* but we think it is very handsome

Then we have fine clumps of *L. speciosum rubrum* and *album*, *L. longiflorum eximium*, *L. Hansoni*, *L. testaceum*, *L. auratum* and *L. candidum*, and tiger lily in profusion.

Of the latter we have the common variety as well as *splendens*, which is a form of the same kind and blooms later and also the double form of the common tiger lily. Last fall we planted *L. giganteum*, *L. sulphureum*, *L. Japonicum Colchesteri* and *L. Martagon album*.

March 6, 1896. N. M.

FLOWER GARDEN QUESTIONS.

"Melrose," near Chicago, asks the following:

1. DOLICHOS JAPONICUS.—"Since Mr. Egan wrote to me to say that this vine would need constant fastening I repent me of the purchase and hope it will die this winter."

Ans. Be patient with it; all the training it requires you can do in a few minutes a week. Simply lead the wandering shoot tips back to their own string or wire and give them a twine around it. It has a field of its own and in its line is a great desideratum. It is a very coarse appearing vine, though; but its rank growth and shoots running 20 or 30 feet a year are valuable points where quick growth is needed.

CLEMATIS DAVIDIANA.—"Give us a description of *Clematis Davidiana* and directions for its management."

Ans. It is a hardy herbaceous plant from Northern China and does not climb. It grows 2 to 3 feet in height, forming bushy clumps, which after midsummer bear quite a profusion of small fragrant blue flowers, in shape not unlike hyacinth bells, thickly clustered around the joints of the branches and terminating them. We have found it to be perfectly hardy, but as it dies down in fall like a pæony it may be mulched in winter with leaves or littery manure if there is any question of its hardiness. It isn't a showy plant at all nor is it a neat one, but if tied up in time inside a hoop, as we often do pæonias or tomatoes, it is really worthy and pretty.

LARKSPUR SEEDS.—"I am still struggling with these. Is the shelf ten inches above the radiator too hot for them?"

Ans. A place ten inches above a radiator would seem to be pretty hot and dry, too, for seeds, but it could be so arranged that both of these would be tempered enough to make it a good place for seed. We start larkspur seed in flats in a hothouse in spring with fairly good success; at the same time we don't advise you to do it. If you should treat the larkspur seed just as you treat your celery seed, we think it would germinate all right if it were good. Wait till April; then sow it in a cold frame or bit of moistish ground out of doors, protecting it from drying wind and shading it from all sunshine till the seedlings appear. A hotbed is a capital place for quick-growing seeds, but for hardy perennials in general and slow-starting seeds of any sort we don't advise its use.

CLEMATIS PANICULATA.

The illustration in Feb. 15 issue of GARDENING of this clematis is a charming one and clearly portrays the beauty of the plant, showing both the individuality of the star-shaped flowers and their effect in masses. Those of your readers whom the illustration may induce to plant the clematis will in time have good cause to thank GARDENING for so intelligently bringing it to their attention. Your admirable article on its cultivation is in keeping with all those you favor GARDENING with, and especially that portion covering the removal of the debris of the adjoining building. I have had some experience in planting moisture-loving plants near cellar walls, and have found that the water given the plant is apt to run down between the soil and the wall. Many soils contract in drouth, especially in holes dug in a heavy clay loam and a crack of considerable width forms at the side. Water poured in these cracks if in sufficient quantities is all right, because the cracks are only of the depth of the hole and the water is retained at the bottom and soon soaks into the ball of roots. [But don't let the ground crack open near your plants, for in cracking not only does the earth break apart but the rootlets passing through there are also severed. Mulching and loose surface cultivation are the antidotes for cracking.—ED.] In case of planting close to a cellar wall it is different, as the wall extends below the roots and moisture generally escapes by a drain tile. When I plant anything permanently close to a cellar wall I excavate nearly three feet deep and about as wide, taking out the soil clean up to the wall. Then I construct a wall of cement—say four to six inches thick—against the brick wall and turn the ends in on each side of the hole for about a foot. Thus the side of the hole towards the brick and part way on each side is cemented. This cement is carried up to the surface of the soil. I find it makes a great difference in the amount of water required. This clematis is a gem of the first water and naturally requires a good setting. Any plant that grows so luxuriantly must have ample room to feed in. When we plant it we must remember that we expect it to remain many years—to increase in beauty and grandeur at each successive season of bloom. We expect and require this of the plant. What does the plant require and expect of us? The article in question tells you, namely, a good rich soil and plenty of it, a hole three feet square is none too large. At the approach of the blooming season weekly doses of manure water materially helps it. It will bloom in quite shady positions, but later than in the full sun. In the latter position against a hot wall, an unusually hot day last summer that wilted almost everything, also injured the flowers of this clematis with me. You omitted to mention the delicious perfume emanating from its bloom, reminding one of hyacinths and orange blossoms. I think that if Horace Greeley were alive and saw your illustration he would say, "Young man, get a *Clematis paniculata* and then go west." W. C. EGAN.

Highland Park, Illinois.

ANEMONE CORONARIA, ST. BRIGID'S STRAIN.

One of our readers writes: "I have obtained seeds of St. Brigid's anemone from Europe, please tell me how to treat it?"

Ans. It is the loveliest strain of the poppy anemone, big, fine flowers and some of them of the most vivid crimson and scarlet coloring. In European gardens the seed is generally sown about June and the seedlings pricked off into a shaded cold frame and kept in continuous growth till they come into bloom in winter and spring. We can do the same here except that as our summer climate is so trying for raising plants from seed, we prefer to sow in spring. We sow the seeds in flats filled with light soil and kept in the greenhouse, or if as late as April, in flats in a cold frame under sash and lath shades. After the seedlings come up prick them off into other flats, and when they begin to meet each other plant them out in good, moistish ground, in a sheltered, faintly shaded spot, in a cold frame against the north side of a board fence or building and under lath shades, letting them stay there all summer. Towards midsummer they may die down, but they will reappear in fall, when they may be lifted and planted with pansies and polyanthus in a south facing frame, and early in spring, if you wish to, lifted with balls of roots and adhering earth and planted out in warm sheltered spots in the garden. After one gets a good stand of seedlings there is really nothing difficult about their cultivation, and the plants lift with fine balls. This is how we grow them at Dosoris, and we have them, oh, so beautiful!

CLEMATIS PANICULATA AND COW MANURE.—"Whitewater" asks: "Will this clematis bear manuring with rotted cow manure as a mulch or top dressing?"

Ans. Yes, most thankfully. Last year for some new sorts of sweet peas we manured a piece of good ground with four inches deep of cow manure, and not needing all of the ground for the peas at the outer edge of it we set out some little plants of *Clematis paniculata* and some other odds and ends we wanted to treat well. Oh, how these clematis grew and bloomed! They made fine clumps. But we disadvise the use of cow manure as a mulching for clematis, roses, or other soft or slender-rooted plants between April and July, because of the great attraction it affords as a breeding place for May bugs. We have been caught in this trap once or twice.

Trees and Shrubs.

THE AMERICAN HOLLY.

Apropos of the notes, page 146, would say: This holly is a dioecious tree and we have no means of knowing whether we are getting a staminate (sterile) or pistillate (berry bearing) plant until they bloom, so that we may sometimes have wait more than twice twenty years before we get the right one. Trees 5 or 6 feet high often bear berries, but from observation among those growing wild I should say that much less than one-half of them ever bear berries at all. I have never grafted any. To be sure of a berry bearing plant find a small fruiting specimen growing wild and transplant it. In the first place cut off all the leaves with a shears. This is practically a *sine qua non* and the most important requisite to success. Try and get a good ball of earth of earth to the roots, and get all the roots you can. It may be better to remove some of the top of the tree too. Plant carefully packing the earth well around the roots, mulch heavily and then water abundantly if the weather gets dry during the season, being careful not to wait till the roots have been dried out and killed before applying the water. If possible remove the trees in damp weather, and avoid doing it during hot sunshine or when there is a drying wind. We have here plenty of hollies growing in nearly pure sand but the foliage looks much richer and darker when there is plenty of moisture at the root and where it is protected from the full sunshine.

Hammonton, N. J. WM. H BASSETT.

To be sure of small plant of the American holly (*Ilex Opaca*) that will bear berries, they must be raised from layers from a berry bearing tree or by grafting, using cions from a fruiting specimen. Some six or eight years ago I grafted a lot of young plants taking the cions from a berry bearing tree, and they fruited, some the year following and all the succeeding season, and regularly every year since except last year, when the severe frost we had on May 17 destroyed the flower buds. About the same time we also raised several thousands from seed and four years ago planted them out in nursery

A TRUMPET CREEPER ON CLOTHES POLE.

rows, and they are now 3 to 4 feet high, but so far not one of them has ever borne a berry. Of course for hedges they are good enough. We do the same thing with the winterberry bushes, *Ilex verticillata* and *I. lævigata*, that is propagate them by grafting from fruiting plants, and they bear berries right off, from the time they are 18 inches high. J. R. TRUMPY.
Flushing, L. I.

MOUNTAIN LAUREL.
(*Kalmia latifolia.*)

A reader asks "How close should it be planted and would it succeed in the shade of old maples where the grass is thin, or would the tree roots use up the prepared soil?"

Ans. This kalmia grows wild in great abundance in the woods in the neighborhood of Dosoris in the thin shade of oaks, beech, chestnut, maple, and so on; also on the banks skirting these woods and in some places by the roadside. In the woods it makes rather a scraggy under growth; in the more open parts, by the roadside, and escaped into old fields it becomes dense, handsome evergreens, pretty at any time and lovely in June when in bloom. In all of these places the surface of the ground is open and spongy, with a carpet of decaying tree leaves, wild plants, weeds or grass. When it rains the water goes right into the ground where it fell, the spongy surface catching it and preventing it running away; this surface also saves the roots from wind and hot sunshine. In a well-kept garden the surface of the ground is so neat and prim and there is no surface sponge of rotting leaves and grass, and under the shade of a robber maple the ground is apt to be bare, dry and hard, and we should say not a congenial home for kalmias. These shrubs are so beautiful they deserve the very best spot in the garden, good, well-drained soil with a good deal of leaf mold and very little manure in it and a mulching of rotted leaves; in fact, give them exactly the same treatment you would to rhododrons. Plant them 3 feet apart and when they begin to meet each other in the clump thin them out, digging the plants carefully and resetting them elsewhere.

TRUMPET CREEPER ON CLOTHES POLE.

With this I send you a photograph of a bignonia (*B. grandiflora*) on the grounds of H. M. Mayer, Rohrerstown, Pa. This photograph illustrates very well how a handsome object can be made of the usually unsightly clothes line post. I have such posts covered with vines on my own lot and by using a staple and a ring to attach the clothes the line may be put up and taken down at pleasure, and the posts and the covering really make beautiful garden objects. J. W. ELLIOTT.
Pittsburg, Pa.

This is the Chinese bignonia which has larger and more showy blossoms than our native trumpet creeper (*B. radicans*), it also is a little more tender. In sheltered places it grows and blooms very well about New York, but it is from New Jersey southward that it is to be had in its greatest glory, and it is fine. Hall's honeysuckle, Chinese wistaria trained up the pole and then cut in close to it every year, if the yard is sheltered and the ground good, the climbing hydrangea, *Clematis paniculata* cut down to the ground every fall, and several other vines can be used for this purpose. Avoid overrank vines like the Japanese dolichos, vines which because of restricted growth sucker all about as our native trumpet creeper is apt to do, and we should hesitate to recommend pillar roses because of their thorny stems that in windy weather might tear the clothes.

BECHTEL'S DOUBLE-FLOWERING CRAB.

I have some cions of the above beautiful American crab (*Pyrus coronaria* var. *Iœnsis*), and I want to graft them on to native forms growing on my ravine bank. I find quite a number of hawthorns in suitable places and of suitable size. Can I successfully graft the Bechtel's crab on the hawthorn? W. C. B.
Chicago.

Probably you may succeed in grafting this crab on to the hawthorn, but we don't like the connection. The crab is a true apple and we should prefer to use an apple stock for it—say a wild crab or a Japanese crab. We have never grafted the apple on to hawthorn, but we have grafted the pear cion on to it and it took nicely and produced fair trees; still it was an unhappy union. You may get the "grafts to take" all right, but the trouble doesn't end there; they may not succeed after taking. Of course it is perfectly natural to argue that if such wide apart genera of the same natural order as the pear and hawthorn or the pear and quince, or the pear and mountain ash may be successfully grafted on each other, why not the apple on the hawthorn? We cannot speak from experience, but practically we have an instinctive perception that the ultimate result of the union would not be satisfactory. But don't be discouraged; by way of experiment, try one, any way.

SOME GOOD LILACS.

G. A., Butler, Pa., asks for a list of these.

Ans. Charles X, reddish purple; Cœrulea superba, light purple and blue; Souvenir de Ludwig Spath, the finest of all the dark colored ones; Frau Dammann, Marie Legraye, and Princess Alexandra; all of these are very fine, distinct, white-flow-

ered varieties you must surely get. As double-flowered sorts get Mme. Lemoine, white; President Grevy, bluish; Lamarck, rosy lilac, and Maxime Cornu, lilac rose. Don't omit some Persian lilacs, say the white Persian, and Rothomagensis rubra. Villosa is a late-flowering species with dense panicles of pale rose-purple flowers, distinct from other lilacs. If rosebugs are not very numerous in your part of the country, get the tree lilac (*Syringa Japonica*), and the Chinese lilac (*S. Pekinensis*); they have large panicles, often compound, of white, fleecy-like flowers after the common lilacs are all past. But if you are in a rosebug country the bugs will infest and destroy the blossoms.

THE SUGI OR JAPAN CEDAR TREE.

(*Cryptomeria Japonica*).

Our illustration, engraved from a photograph, shows a pretty little plant of the Sugi tree of Japan growing at Dosoris. Behind it stand some fine old red cedar (*Juniperus Virginiana*) trees. The cryptomeria is an evergreen conifer with a general contour remainding one of the big trees (Sequoia) of California, and in favorable localities becomes a striking and handsome garden tree. It seems to be perfectly hardy on Long Island, and flourishes south of New York, but north of here if away from the sea coast it is not reliably hardy. To have it appear in its finest form it should have good moist loamy soil and a sheltered position and it is well worth such care. In its native country it is largely planted in gardens and temple grounds and in forests, where mature specimens with trunks 4 feet or over in diameter rise to a height of 100 to 125 feet. In cultivation in our gardens there are several varieties of it, the commonest being the dwarf one called *nana*, the Dosoris specimen of which doesn't grow six inches in height in a year, but it keeps dense and healthy, and seems to be as hardy as the type.

Cryptomeria elegans, another but more Southern Japan species, is not hardy with us. It is, however, hardy in the south, and to be found in lovely perfection in the gardens of Southern Europe. Here it is grown as a cool greenhouse tree, or it is planted out of doors in summer and lifted and housed in a pit over winter as we do with sweet bay laurels, fancy hollies, etc., while of a beautiful soft green shade in summer, in winter it assumes a bronze-brown tint just as do *Retinospora ericoides*, Douglas golden juniper or Chinese golden arbor vitæ.

DOUBLE-FLOWERING SLOE-FERTILIZER.

Naples, Long Island City, asks as follows:

DOUBLE-FLOWERING SLOE (*Prunus spinosa fl. pl.*)—"Should it be pruned, and if so, how much and when?"

Ans. It isn't extra vigorous and all the pruning, if any, it needs is to keep it in comely shape. Don't prune it unless it becomes unshapely, for the more you prune it the less it will bloom. If pruning is needed, do it now.

FERTILIZER FOR SHRUBBERY.—What should be used as such and when?

Ans. A compost of stable manure (chiefly cow manure, if available) and field loam, about half of each. A heavy dressing of stable manure alone will also do good. A dressing one-fourth inch deep of wood ashes will help the bushes. If you prefer a chemical fertilizer, use a "complete manure," but be very careful; use it under rather than over the allowance given in printed directions given you by the agent from whom you buy the manure.

VITIS COIGNETIÆ.—A reader writes: "I have an outside chimney 30 feet high and 6 feet wide which I desire to have covered with a vine, and 'I feel it in my bones' that this is the proper vine for the purpose. What say you? *Ampelopsis Veitchii* isn't quite hardy with us and I don't want the Virginia creeper. Can you recommend any other self-clinging vine that would cover it?"

Ans. Veitch's ampelopsis not being sufficiently hardy with you, we know of no self-clinging vine that will answer your purpose. While we have great faith in *Vitis Coignetiæ* and have planted it at Dosoris, it is so new with us that we know very little about its behavior here.

JAPAN ALLSPICE.—In answer to H., St. Louis: The botanical name of it is *Chimonanthus fragans*. The folks you sent to for it and who didn't know it should look into Dr. Asa Gray's Field, Forest and Garden Botany.

Roses.

LORD PENZANCE'S HYBRID BRIAR ROSES.

I am getting a set of Lord Penzance's hybrid sweet briars; am puzzled to find a place for them. Will they thrive where they get the sun up to say 11 a. m? After then would be in the shade? E.

Northern Illinois.

So far as the situation as regards sunshine is concerned, providing there is no overhead shade like the branches of trees, we should think it was all right, but as these hybrid briars are new to us and our experience with them is so limited we cannot speak authoritatively in reference to their success in our gardens. True, their mother the sweet briar is hardy enough, but as we are not so sure of all of their pollen parents, we must test them before we can vouch for their hardiness. The following notes on these roses are from a reliable English catalogue just to hand, but there is no need of sending to Europe for them. John Saul and some other of our nurserymen have a stock of them:

HYBRID SWEET BRIARS.—Raised by the Right Hon. Lord Penzance from the common sweet briar crossed with various old garden roses, the Austrian briar, etc.

AMY ROBSART.—A true briar of robust habit and very free blooming. Flowers deep rose, very beautiful in bud.

ANNE OF GEIERSTEIN.—Dark crimson succeeded by clusters of bright red hips.

BRENDA.—Maiden's blush or peach color greatly relieved by the bright golden anthers.

FLORA MACIVOR.—Flowers white faintly tinted with light rose, large and very useful for cutting when associated with the handsome foliage of the plant.

LADY PENZANCE.—Flowers of peculiar and distinct color; the base of the petals is yellow, the remainder coppery red with metallic lustre. Both flowers and foliage very fragrant; habit vigorous and subpendulous.

LORD PENZANCE.—Soft shade of fawn or tawny yellow passing into bright yellow at the center, sometimes toned with pink; very floriferous and sweet scented.

LUCY ASHTON.—White edged with pink, very free flowering, erect habit and fragrant foliage.

MEG MERRILIES. Brilliant crimson, free flowering, robust habit with large foliage.

ROSE BRADWARDINE.—Clear rose, good shape, plant of robust habit and profuse bloomer.

BLACK SPOT ON ROSES.—J. J. DeL., Cloquet, Minn., writes: "I send you some rose leaves. Please tell me what is the matter with them and what I should do to stop it?"

Ans. The trouble is black spot, a common and very destructive fungoid disease t chnically known as *Actinonema Rosæ*. Any uncongenial cultural or climatic condition may cause it—for instance, prolonged damp dull weather, sudden chills, a sodden soil, a raw, close, damp atmosphere, inattention to ventilation, etc. Prevention consists in close attention to the best cultural details, including rigid cleanliness and the picking off of every spotted and fading leaf. Dr. Byron D. Halsted, our cryptogamic authority, says: "This trouble may be held in check by the carbonate of copper compound, using three ounces of the carbonate of copper, one quart of ammonia and 50 gallons of water. Spray once a week, using a hose and a nozzle that gives a fine spray. The point should be to wet every part of the plant and yet not drench it. If many leaves have fallen from the plant they should be gathered up and burned." But without the strictest attention to cultural details spraying will avail one very little.

ROSA GRANDIFLORA.—C. W. asks: "Should this rose be trained to a pillar? How high does it grow?" *Ans.* It is not a pillar rose, rather, it forms a bushy plant 2 to 3 feet high and as much or more thorough, but with age we should expect it to add a foot or two more to its stature and more than that to its spread of branches.

Aquatics.

WATER LILIES.

"How much space is needed by the *Nymphæa odorata*? How much by the *Nelumbium speciosum*? How can a water-tight tank large enough for one nelumbium and a half dozen nymphæa be constructed? Is a tub or tank for growing water lilies likely to become a breeding places for mosquitoes? A. D. M.

Ans. Get a gasoline or wine barrel and saw it across through the middle, making two equal-sized tubs from it; then out in the back yard start a little fire of a few sticks or shavings and turn the tubs, one at a time, over that for a minute or two to burn out the uncleanness; to put out the fire in the tub, turn the tub over on its mouth on the soft ground, drawing a little earth around the edges to smother the fire. Now, with plenty water and a stiff broom scrub them clean. Put two to three inches deep of clean rubble in the bottom of the tubs and a thinly peeled sod, grass side down over that to keep the rubble free from dirt; then fill the tubs two-thirds full with a compost made of two-thirds of the best rotten sod loam you have and one-third cow manure. Now, plant the lilies, a good strong crown in the middle of each tub, and spread an inch deep of clean sand or fine gravel over the soil to give all a nice, clean appearance and to a certain extent prevent the muddiness of the water, and set the tubs out in the sunshine wherever you wish to have them in summer. Before

CRYPTOMERIA JAPONICA AT DOSORIS

the summer is over both tubs should be well filled with foliage and flowers. If two good plants of the nymphæa are put in the tub a full effect will sooner be realized. For a tank use brick and good cement. Eighteen inches deep will do; any size you wish, for single lily pads spread from 2 to 6 or more feet, and one plant of nelumbium would, if permitted, soon cover several yards, but you can restrict both to any reasonable space you wish. Build a single brick (4-inch) wall across the tank between the nelumbium and the other lilies, else the former will soon enter and monopolize the nymphæa ground. If you keep a few goldfish, sunfish, or carp in the tank or tubs you will have no trouble with mosquitoes, but if not, a more congenial breeding place for these pests would be hard to find.

The Greenhouse.

MY GREENHOUSE PLANTS IN WINTER.

May I give your readers a page of my experience? [GARDENING welcomes your experience, and so it will that of our other readers.—ED.] I have a greenhouse about 35 by 12 feet in which, for recreation, I try to keep a supply of cut flowers of the simpler kinds, for our parlor in winter. It is heated by hot water from a boiler in the house, and I keep the temperature as near as possible to 50° at night and 70° in the day time. These are my successes and failures.

Heliotropes, I grow very finely and with abundant bloom, from cuttings taken in the summer. Pelargoniums, the same, but in pots, heliotropes in the ground. Freesias, I have an abundance of, as they increase very largely from year to year, and it does not seem to make any difference what kind of soil they have, they always bloom beautifully. Only I cannot get much of a succession, as those that I planted in boxes early in September and in the benches in October and November all come into bloom about this time.

Rose geraniums, I have a large bed of, the same plants for the last three years, giving me constant cutting, and they are always thrifty. Daisies, I took up two of, which had been in the garden bed all summer, but were nearly dead from drought; cut them back and potted them, brought them in before frost and they have bloomed all winter. Abutilons the same. Nasturtiums, I always plant, and have tried all kinds of soil, even almost pure sand. One year they bloomed profusely, but other years, they grow to vine, with few flowers. [Restrict their root room, but otherwise feed them liberally.—ED.] Sweet alyssum and mignonette, I always have plenty of, if I am careful not to have the soil too rich, and thin them far apart.

Begonias, several varieties, grow and bloom well, but are not of much value for cut flowers. Two of them, spending the summer under shade of bushes, dropped seeds, from which I have potted a dozen plants which are growing finely.

Callas, I let dry out in the summer, and then repotted and followed the directions given somewhere, "give them plenty of warm water and wait for blossoms." [Not in GARDENING?—ED]. And I am still waiting; they look fine, but show no buds. Would they not do better, of planted out for the summer? [No, they bloom better and with more certainty when dried off in summer. When they have done blooming, say in May, lay them on their sides in a shady place out of doors, keeping them quite dry; about the first of August, shake them out of their pots, separate the "bulbs" cleaning away all dead parts from their base, and repot, say four large roots into an 8-inch pot. Stand them up and leave them outdoors in thin or partial shade till end of September.—ED.]

Carnations are my *bete noir*. I raise fine plants, give them rich soil, compost of old sods and barnyard manure, water them, sometimes sparingly and sometimes freely, occasionally with liquid manure, and they grow luxuriantly, but have few and usually small blossoms, and my neighbor Besold at Mineola, has them in abundance and as large as roses, and I am tempted to break the tenth commandment. Can it be only that I do not press down the soil firm enough?

Hyacinths and other bulbs, I have no success with. No matter how I plant them, half of them are failures, and none of them are fine. [Don't hurry them. When you bring them up out of the cellar or elsewhere, don't set them up on the bench, but place them on a platform or shelf under the back bench, and where drip cannot reach them, till they grow and throw up their flower stems but not open or color their flowers.—ED.]

Cyclamen Persicum, send up fine mottled leaves, but only a few flowers.

A friend gave me three years ago, a fine root of allamanda, which I planted out in the bench. It grew and bloomed most profusely, but last summer, began to drop its leaves and buds, and finally died. Did it exhaust itself? [No, it is a long-lived very luxuriant woody vine some local cause was the trouble.—ED.]

I keep always a nice bed of parsley.

Garden City, N. Y. S. C.

BOUGAINVILLEA STROBILANTHES.

A Wisconsin reader asks about

1. BOUGAINVILLEA GLABRA as a window plant?

Ans. Although splendid in its floral glory and of fairly easy culture we cannot recommend it as a popular window plant; but the dwarf form called *Sanderiana*, being of much more restricted growth than the type, may probably make a fairly good window plant. Have any of our readers grown it as such?

2. STROBILANTHES DYERIANUS as a window plant?

Ans, No, we don't recommend it as such. In a warm greenhouse it makes a pretty little pot plant, and under certain conditions it makes a good fine-foliaged plant in the flower garden in summer.

3. PRUNING CACTI.—Will the long-leaved cacti (*Phyllocactus*) bear pruning or shortening in of any sort? If not, what can be done to prevent a too straggling growth?

Ans. Yes, you can cut off branches or stems at any length, the wound will soon heal and lateral shoots (maybe not this season though) in due time spring out from the shortened branches. But when plants are in very vigorous condition the

branches of *P. latifrons* are apt to shoot up one to three feet with a round naked stem before widening into a flat, fleshy branch; still, restricted pot-room and judicious pruning will curtail their rampant nature. The other kinds of phyllocactus, common with us, are very easily regulated by pruning, but most folks instead of shortening the shoots prefer to insert a short, stout stake by them, to which their lower half is tied for support, the end part being allowed to loop down.

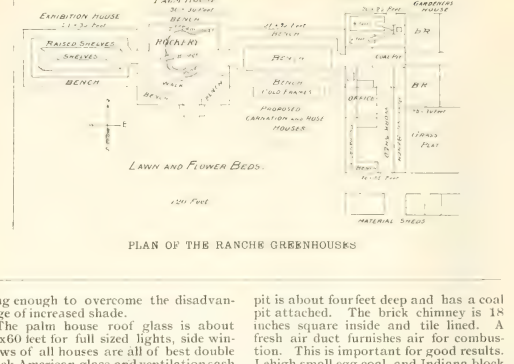
"THE RANCHE" GREENHOUSES AND HOW I BUILT THEM.

"The Ranche" greenhouses are situated at the corner of Superior street and Linden avenue, Oak Park, Ill., and their construction was begun on September 15, 1895, on home made plans with home talent. In three months from that date they were practically finished, and stocked with plants, and the water started down "Rocky Run" in the rockery. They are intended for recreation from business cares and for the pleasure of plant lovers. The range is 150 feet long, consisting of two three-fourths (long-span-to-the-south) houses each 21x35 feet with a central palm house 30x30 feet. At the rear end is the boiler house 20x25 feet with a workshed 20x25 feet at right angles thereto, also a number of material sheds. Adjoining the boiler house is the gardener's house 28x30 feet, one story and attic high with coal shed adjoining.

The greenhouse buildings are all supported by white cedar posts about 4 feet apart of different diameters all squared above bench height, and the butts well spiked to 3x12 hemlock planks, sunk in four feet trenches. The butts were painted with coal tar as were also the two inch pine plank sheathing under the surface of the ground and for several inches above. Moninger's greenhouse lumber was used for all gutter plates, rafters, ridges, sash bars, etc., and amateur builders will do well to always obtain such pieces of a specialist ready made, as the patterns are the results of large experience and ingenuity, and will save endless after trouble.

The cypress gutter plates with spliced and white leaded joints were firmly spiked on the tops of the supporting posts sawed off at 5 feet from sidewalk grade for the greenhouses and work shed, and at 15 feet 9 inches for the palm house. Ridge plates of the lower houses are about 15 feet 4 inches above grade, giving the roof a desirable steep slope to the south. Roof glass is best American double thick 14x18 inches lapped ⅜ inches and bedded in pure white lead putty. Ventilating sash are continuous on both sides of ridge. Purlins are of 1¼ inch gas pipe, and ridges and purlins are supported by similar gas pipe posts with flat stone bases.

The palm house has a hip roof with a ten foot dome in the center. The gutter plates of the house are tied by four 1¼-inch gas pipes crossing the house at right angles, one under each plate of the dome, and are stiffened by being connected to four iron rods hung down from the plates of the dome. Although the roof and dome, with the heavy ribbed plate glass, cover a building thirty feet square yet all is perfectly rigid by this simple arrangement, and have already sustained an unusually heavy fall of wet snow without damage. The ribbed glass is butted to heavy galvanized iron dividing strips which are so flat that water runs freely over them. These strips would be good in all cases where butted glass is long enough to overcome the disadvantage of increased shade.



PLAN OF THE RANCHE GREENHOUSES

The palm house roof glass is about 24x60 feet for full sized lights, side windows of all houses are all of best double thick American glass and ventilation sash are all operated by Moninger's apparatus by which an entire section can be opened or closed at once.

The ridge sashes over-lap each other, thus preventing leakage and drafts of air and also preventing the freezing down of the sash to a large extent. The houses were first sheathed with fencing flooring, which was then covered with waterproof building paper and asbestos paper and finally with patent siding. The plant benches were intended to have been supported by gas pipe floor beams and posts but on account of lateness of the season pine 2x4 was substituted, the posts being well tarred at the bottom. Two inch bottom boards, sawed to set across the bench, were laid loosely to enable easy replacing in case of decay or other cause. All were painted with Portland cement and laths laid over the joints to prevent the soil from being washed through. All special greenhouse lumber was primed with pure white lead (pure white lead must be procured specially, painters seldom use it on contract work), and all work inside and out has received two good coats.

The natural clay floors were covered over with about six inches of clean, sharp sand coming up to within about fifteen inches of outside grade. Over this sand are neat maple slat floors in short removable sections permitting frequent cleanings underneath. In the palm house crushed stone is used on account of its more harmonious effect. The rockery has two curved benches on the south side and a three inch pine plank bench on each of the others.

All the houses will be lighted at night with 16 candle incandescent electric lamps Long glass insulators and best out of door wire will be used on account of danger from dampness.

The houses are heated by about 2,000 feet of 4-inch out flow pipes with butterfly valves, down grade system, and with 5 inch return pipes caulked with oakum, red lead and Portland cement. A nine foot boiler is now being used, a small boiler having been found, like a small mule, willing but lacking in size. This new boiler is a beauty and has the advantage of heating water all around the soot chamber, thus saving a great deal of fuel. Ignorance of its existence cost the undersigned three hundred dollars in cash and untold injury to his plants. The boiler pit is about four feet deep and has a coal pit attached. The brick chimney is 18 inches square inside and tile lined. A fresh air duct furnishes air for combustion. This is important for good results. Lehigh small egg coal and Indiana block coal are used according to circumstances and pea coal is used for banking up in mild weather. The writer will not confess what these improvements cost but advises all amateurs to have plans and estimates in advance even for a house as small as an ordinary bay window. Every part of these houses is consistent with absolute cleanliness and the hose every Saturday afternoon leaves everything as bright as a silver dollar, including too frequently the office desk.

The houses are well arranged for convenience and it is designed to have a place for everything and everything in its place. The work shed embraces potting and propagating benches, a large open square floor space for unpacking plants on their receipt and the office. In the boiler room are a plunge bath for plants, washing, and draining benches and a carpenters and steam fitter's bench. Under the benches of both rooms are capacious bins for a general assortment of pots and general necessaries. Small low sheds close by accommodate manure, leaf mold, sand, soil, etc.

An artesian well 175 feet deep furnishes plenty of soft water pumped by a gasoline engine.

It is expected that the east house will be used principally for roses, carnations and annuals. The west house is for exhibition plants and bulbs and has got raised shelves in the center and rear. The rockery is the main feature of the palm house and is constructed of Niagara lime stone which crops out at the surface at Western avenue and Erie street, Chicago. It is peculiarly adapted to the purpose being almost black with white spots and well honey-combed. At the rear the rockery is about eight feet high and it falls irregularly down towards the curved front. A mountain rill starts at the highest corner and meanders around obstructions and over minature bowlders and under a rock bridge until it finally finds rest in a little pond which is now in serious need of water hyacinths and poppies. The rock work is now well covered with palms, rubber trees, ferns and many other plants. For future effect greatest stress is placed on the silk oak. The plants of the rockery would require a special article, they are now so many. Among the finest are Mr. J. T. Anthony's prize *Areca lutescens* and Mrs. Sprague's unsurpassed variegated pine apple plant.

THE RANCHE GREENHOUSES, OAK PARK, ILL.

A corner bench of the palm house will be devoted to cacti and allied families and the opposite ones to ferns, palms and vines. The pond will contain water hyacinths, water poppies and the lesser water plants generally.

Taken altogether the houses make a very good place for a mid-winter visit and the rockery is quite suggestive of a summer trip to the mountains. Mr. George Baldwin, who learned his profession in London and who was for between five and six years head gardener to the State College of Pennsylvania, has charge of the houses. NATHAN M. FREER.

HARRISII LILIES WON'T START TO GROW.

A. S., Wis., writes: "What is the matter with my Harrisii lily bulbs? I potted them carefully last October, but out of six only two have started, and those only by the use of bottom heat, so to speak. I have just taken one of them out of the pot and found it sound to the core—no rot—but no sign of roots, though it has been in a warm room for the last month. I have had just the same experience for the last two or three years, though I formerly had excellent success with them."

Bulbs that have been grown so near the surface that they become exposed to the light generally make a poor start; also those bulbs that are exposed to the dry air of the store until they shrivel will start very slowly and make a very weak growth. I should advise Mr. S. to break up one of the bulbs and find it the center or heart of it is sound; it may be that the heart or crown of the bulb is gone, although the scales look bright on the outside. I have examined some late potted bulbs of longiflorum and find that to be the case. JAMES DEAN.

Bay Ridge, Brooklyn.

WINTER BLOOMING CLIMBERS FOR COOL HOUSE.

What are the best winter bloomers among the fine greenhouse climbers? I have no use for those that do not thrive under a night temperature of from 45 to 50°. A. D. M.

They are few. Many climbers will live first rate in that temperature, but won't bloom in winter when you want them in flower. Try a Cherokee rose, lapageria, *Plumbago capensis*, fuchsia Speciosa kept to a single stem with spurs and trained up a rafter; *Habrothamnus elegans*, if you like the color of the flowers; *Rhynchospermum jasminoides*, towards spring; *Thunbergia laurifolia* at the warmest end; and some Lobbianum nasturtiums. *Passiflora racemosa* blooms nicely in winter, but as all passion flower vines are so pestiferous as regards mealy bugs we hesitate to recommend them for a small greenhouse. Kennedyas also bloom freely in winter, but they are not showy enough.

A SOLUTION FOR KILLING WORMS.

You ask for a fairly safe solution for killing worms, grubs, etc., in the earth in the pots and on the benches without injuring the roots of the plants. Vegetable insecticides would of course be the safer, and I would suggest that you experiment with the following: Pyrethrum in water (½ ounce to two gallons of water) hellebore (one pound of powder to 20 gallons of water); quassia water; tobacco water; mustard water. Lime water will kill small and tender insects in pots, and weak kerosene emulsion might be servicable to you. J. A. LINTNER.

Office of New York State Entomologist.

ADIANTUM CUNEATUM AND A. TENERUM—A subscriber wants "directions for the management of these two maidenhair ferns, especially with reference to their summer rest."

Ans. The first named is the common maidenhair of the greenhouse; the second is another species also common in cultivation. Both are tender and they are evergreen, with a tendency to grow in summer and rest in winter. In the greenhouse they are of the easiest culture. Grow them in pots, well drained, and use any common potting soil that is not very stiff; many people put a good deal of sand and leaf mould in the soil and others again use the same soil for these ferns that they do for their roses and carnations; we use the latter with a little leaf soil and sand mixed into it. They like moisture in the soil at all times, but more when in active growth from spring through summer than when in comparative rest in winter; a cool or moderate temperature is better than a hot one; while they like fresh air, they dislike draughts, and they should have shade from warm sunshine at all times. During the summer months they will enjoy a seat on the piazza or on a shelf out of doors wherever you keep your other plants, but never forget them as regards water and protection from sunshine. Young plants are better than old ones for keeping fresh and green in winter, and if they are repotted in July or early August, giving them a small shift only, they are apt to have a less tendency to go to rest than were they potbound when the summer was over.

CARNATION RUST

Has made its appearance in this neighborhood since a couple of years or so. Some of our florists have tried Bordeaux mixture, and other chemical preparations, but these didn't seem to affect the disease for the better or the worse, others whose plants were badly diseased claim that by thoroughly syringing the plants with hydrant water daily from the top of the plant down they have completely overcome the disease. A case of rust infested carnations subjected to this hydrant hosing, for two or three weeks, came under my notice recently and I was surprised at the healthy appearance of the plants. In view of this shouldn't the best arrangement in our carnation houses be narrower bencher, and more shallow beds of soil, stake and tie up the plants early, have the greenhouse in the sunniest aspect and syring them regularly and add a little fresh soil and fertilizer to the beds as the season advances and the plants require it? W. MATHEWS.

Utica, N. Y.

That's all right from a florist's stand point where carnations are grown planted out on benches, and is being generally adopted, but what is the amateur to do who grows his carnations in pots? Our advice to him is to confine himself to such varieties as are not subject to rust, and don't grow a plant of any sort that is a ready prey to the disease. Take Scott for instance, what a free-growing prolific variety it is, and it seldom has a speck of rust on it, but take Daybreak, and it may be covered with rust. Then you want to grow Scott and discard Daybreak. Among scarlets Portia is seldom touched but The Stuart is most always full of it. Bridesmaid, perfect a flower, is hardly touched, neither is the sweet Albertini, but both Hinze's White and McGowan get rusted but not to any great damaging extent. Stick to clean varieties, and keep all diseased leaves and spots picked off them.

PLEASE mention GARDENING when writing to advertisers.

GARDENING

WILLIAM FALCONER, Editor.

PUBLISHED THE 1ST AND 15TH OF EACH MONTH

— BY —

THE GARDENING COMPANY,

Monon Building, CHICAGO.

Subscription Price, $2.00 a Year—24 Numbers. Advertising rates on application.

Entered at Chicago postoffice as second-class matter.

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All communications relating to subscriptions, advertisements and other business matters should be addressed to The Gardening Company, Monon Building, Chicago, and all matters pertaining to the editorial department of the paper should be addressed to the Editor of GARDENING, Glen Cove, N. Y.

GARDENING is gotten up for its readers and in their interest, and it behooves you, one and all, to make it interesting. If it does not exactly suit your case, please write and tell us what you want. It is our desire to help you.

ASK ANY QUESTIONS you please about plants, flowers, fruits, vegetables or other practical gardening matters. We will take pleasure in answering them.

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WANTS MORE PLANTS.—A New England Subscriber writes: "I have a new home with an acre or more of land, and am a great admirer of hardy plants, indeed I already have a large number of shrubs, herbaceous perennials, lilies, bulbs, etc., and wish to add some new varieties every year." This is how every one who loves a garden feels, the more one has the more one wants and the greater pleasure he derives from his garden. Gardening is like music or literature, a smattering is not enough, the better one knows the rudiments the more anxious he is for more practice and more knowledge, and the more he indulges his taste for either, providing he is governed by discretion in selection and proficiency in progress the happier he is and the greater is the refining atmosphere that surrounds him.

WITH THE view of advancing public interest in gardening the gardeners and florists of Tacoma, Washington, have organized a society to be called The Tacoma Gardeners' and Florists' Association. E. R. Roberts is president, and Bruno Lehman, secretary.

TOMATOES.—In answer to C. H. we would say, we are glad that the drug clerks of Kansas City are so much interested in this excellent vegetable. Advise them to send to some of our state experiment stations for a bulletin on the analysis of chemical fertilizers. Dr. R. de Roode, of the West Va. Ex. Station, Morgantown, West Va. for instance has issued some very easy to understand ones.

SUCH EDITORS!—Such is the compliment paid to us and also to our esteemed friend, the editor of *Meehan's Monthly*, by one of our readers, who submitted two strictly botanical questions to us and which we declined to answer. We are sorry, but as we feel a good deal more at home in practical horticulture than solving botanical problems we must restrict our course to our own sphere and not dabble in subjects we know so little of.

IN PLANTING A BELT OF TREES never run the front row in an even line be this straight or curved, because it is unnatural and disagreeable to look upon, avoid anything that is harshly artificial. And don't measure off exact distances between the trees, like polka dots on a calico frock, unless you are planting a woods for timber as the trucker plants cabbage in the field, and even then let the margin be a little ragged in outline and diverse in composition.

LILIES IN POTS.—Dean Hole, the eminent English divine and rosarian who visited this country last year, tells the London *Garden* how he grows his lilies. "By keeping them in pots, plunging in winter under leaves or ashes, starting in mild heat in spring, taking them out of doors on the warmer months, and when they come into flower placing them in the beds, covering the pots with soil wherever they will be most effective. Remove and repot in autumn." This is a capital plan even here, but we should also mulch the ground in summer. It also helps to save the bulbs from rot.

PLANTS IN SMALL POTS.—Plants to look well should always be grown in rather small pots. A big pot and a little plant not only look amiss but they indicate bad gardening. Of course when we repot a healthy, vigorous plant the pot may at first appear a little large, but even then it should not have an over-size look about it, but when the plant reaches its blooming stage, for instance a calceolaria, a pelargonium, or a genista, to be in good taste as well as correct cultivation the pot should appear under rather than full sized. Not only should this be observed in the window and greenhouse, but it should be very pronounced as regards plants used in dwelling houses for hall, room, or table decoration.

EXAMINE THE LABELS.—Now that the frost is leaving the ground many of the labels in the flower borders will probably be heaved out of the ground and lying on their sides; look after these and stick them back into the earth, firmly. Also examine labels on rose bushes, grape vines, fruit trees and other outdoor plants to see that they are plainly and legibly written, and securely wired. If the labels are old or decayed and insecure replace them with new ones. Always used painted labels. Never use iron wire for fastening labels on to trees if you can get copper wire, iron corrodes and breaks, copper doesn't, and be careful to have the tying so loose that there will be no fear of cutting in to the bark, even after allowing for another year's growth.

WHAT IS IT?—In a special list of rose novelties from one of the most respectable and reliable firms in Europe, just to hand, we find the following: "*Rosa Rugosa*. America. The American form of *rugosa* found wild on the Rocky Mountains. It differs from the Japanese type in its more open larger flowers, which are of a fine crimson-like color; and in its longer and more ovate fruit often covered with long spines." Never having heard of such arose and finding no clue to it in the botanical works on our shelf, we submitted the matter to the leading systematic botanist of the country, who kindly replies: "I have never heard of an American form of *Rosa rugosa* and must think that there is some error as to the source or identity of the plant."

THE BAYBERRY (*Myrica cerifera*) for ornamental work is one of the most desirable of all shrubs for massing in park or large plantings, but where can we get it? It grows abundantly by the wayside, the seashore, in waste fields and like places, but such plants are not very desirable stock; they are nowhere alongside of the young nursery-grown ones. Talking with a nurseryman making a specialty of native plants the other day we asked him for bayberry bushes. "We haven't got one left," he replied. "We had only about a thousand, and the first man I called on in Philadelphia took every one of them." Nurserymen raise it from seed and in quantity, so that other folks besides our brother of the Quaker city may get some.

PLANTS THAT WILL GROW BY THE SEASIDE.—We often read in horticultural papers, especially in trans-Atlantic ones, about plants that can be induced to grow near the seaside Now, the fact of the matter is this: All manner of hardy garden plants—trees, shrubs, vines, or perennials will grow within 20 feet of the seashore just as well as if 20 miles away from it, providing they are sheltered from the winds and salt spray, and this shelter may be afforded by a belt of trees, hedge, fence, building, or the like. The idea of the salt air being injurious to garden plants is all nonsense. Instead of telling us what plants will thrive near the seacoast, rather tell us what ones won't thrive there, if you know. But when it comes to plants that will thrive right on the edge of the seashore and where the salt water often laves their roots, that's a different matter, and the list is limited.

THE DESIRABLENESS OF VARIETY.—When we first look upon a flower garden filled with geraniums and coleus or checkered with echevrias and alternantheras, the glare is dazzling, the effect is striking and on first sight we may be apt to exclaim "oh my, what a show!" But that is all, the brilliance becomes monotonous, we soon tire of it, and never think of hovering over those beds for an hour at a time, so we turn aside to broken gardening and miscellaneous plants. To the true lover of gardening there is far more pleasure in a rock garden filled with all manner of little plants and a fringe of shrubs and lilies, or a variously filled border containing "everything" than in those show beds. But far be it from us to condemn those vivid beds any more than the singleness

of the paint on our houses, have them in their proper place but not in preponderating numbers or scattered all over the garden, and let their effect be tempered by a proportionate variety of other plants, trees, shrubs, perennials, etc., to break the monotony of the ground and afford us blossoms and pleasure the whole season through.

AN INTERNATIONAL GARDENING EXPOSITION.—The sixtieth year of the Hamburg-Gartenau-Verein is to be celebrated in 1897 by the installation of an international exposition devoted to gardening in all of its branches, which will last from the end of April until September. It is proposed to include a spring exhibition of about five days' duration early in May; a summer exhibition, lasting about a week, in June, and an autumn exhibition in September, extending over eight or ten days, while various special exhibitions are to be arranged for the intervening periods. American plant growers and dealers should be represented at this exposition by displays of decorative plants and others of commercial value and interest. Roomy, well-built conservatories are promised and an adequate list of premiums and medals will doubtless soon be issued. Persons interested are invited to communicate with Prof. Dr. E. Zacharias, of the committee of arrangements, Hamburg, Germany. WILLIAM TRELEASE.

Botanical Garden, St. Louis, February 27, 1896.

ORNITHOGALUM ARABICUM. — A subscriber asks: "Is there any way to prevent its foliage from being spindling?"

Ans. Use big fine bulbs to begin with and grow them in a cool greenhouse or window; the leaves will get long and arching in spite of our best efforts, so when they have assumed a fair length we cut the tips of them off. Of course this is unsightly, to a certain extent destroying the full beauty of the plant as a plant, but it doesn't interfere with the blooming in the least. This is a very satisfactory bulbous plant for winter and early spring blooming, but be sure to get largest size bulbs to begin with; if you get the medium or smaller size they won't all bloom.

Orchids.

ORCHIDS.

Those that are now passing out of bloom should generally have a short season of rest by withholding somewhat their treatment of heat and watering. I would advise that such plants as lælia, cœlogyne and *Cypripedium insigne* be placed in a temperature of 40° to 50° at night with only occasional waterings, give plenty of fresh air and shade lightly. When the warm weather comes these varieties will do finely out doors where they can have the full benefit of outdoor atmosphere and morning sunlight but shade in the hottest part of the day; they will enjoy copious watering daily and the cœlogyne and cypripedium a good watering again at sundown. As they are nearing the finishing point of their growth a few waterings with weak manure water will help them to produce extra fine flowers.

Cattleya Trianæ as it passes out of bloom should also have a little rest. Each plant should be carefully examined and if it is in vigorous condition and has outgrown its pot the stock may be increased by taking off the shoots or leads that have overgrown the pot limit, and they will as the summer approaches readily establish themselves and flower the following winter. If the material is porous and the drainage proper, better not repot the remaining plant, as it will very likely produce two leads and will be in better shape than before. I have found that such varieties as *C. maxima, speciosissima* and *Eldorado* will not flourish long in captivity if kept in large masses, but if broken up when in a dormant condition and placed in small pots or baskets near the roof and of course well shaded and given plenty of atmospheric moisture they will soon establish themselves, make stronger roots and consequently stronger bulbs, and produce flowers more abundantly than if left in large masses. The same rule also applies to *C. Skinneri, C. Bowringeana*, etc. Just as soon as the potting material gets into a state of decay enough to prevent the air to percolate the plant loses its strength, and from the center to the outside the plant gradually loses its growing powers and rapidly becomes too weak to produce strong, healthy leads, and consequently produces no flowers.

In some cypripediums I find a directly different condition; take, for instance, a gross-feeding plant like *Boxallii* or *Morganiæ*, and they do not do as well by division as *Spicerianum*, varieties of *insigne, Lawrenceanum*. I find these do better if broken in two every three or four years, and in these pottings I find sphagnum the very best material as a top dressing, with a mixture of fern root and a little leaf mold and sand with good broken pot drainage. Keep the sphagnum growing as much as possible and water copiously nine or ten months of the year. I have never succeeded in flowering *Morganiæ* on a one-growth plant. I once saw a specimen in a 7-inch pot with four flower scapes, bearing in all ten flowers, and it was a grand sight. I do not think that any other variety can compare with it.

Odontoglossums will now be pushing their flower spikes. Keep up good atmospheric conditions, but do not allow a strong draught to blow on them. I mean such varieties as *O. crispum, Sanderianum, triumphans*, etc. Water generously the foregoing class, but keep off water from *O. grande* and *O. citrosmum* till the flower spikes begin to show from the points of new growths at base of bulbs.

Dendrobium nobile that has been kept back for spring flowering should now enjoy a little warmer quarters, 55° to 65°; gradually increase the watering. *D Phalænopsis* is now breaking into new growth; give it strong heat and lots of moisture and if the heat goes up among the nineties it will be just right for this species on a sunny day, and 65° to 75° with fire heat on a cold day will be about right. Do not over-pot this interesting variety. It will find a congenial companion in *D. formosum*. The latter variety responds readily to light waterings of liquid manure, and I have no doubt that the majority of the dendrobium would do well with this treatment when their growths are half or three-quarters grown.

WM. MATTHEWS.

Utica, N. Y., March 3, 1896.

The Fruit Garden.

RED CEDARS TO SHELTER AN ORCHARD.

Somewhere, sometime, I have seen the statement that the red cedar was not a good tree to have in proximity to an orchard as it was a good host for a certain fungus. [Not in GARDENING.—ED.] Would it be injudicious to plant a row of cedars on north side of an orchard in Indiana as a protection in winter? Paulownia, *Podocarpus Japonica*, Japan persimmon and several varieties of retinosporas, sometimes a little tender, have come through the winter thus far in good shape, also several of the Japan maples.

Blue Spring, Mo. E. J. W.

We have a fine young bearing orchard of apple and pear trees at Dosoris, and lots of big red cedar trees alongside of it, and never knew of the least harm coming from the cedars. But as we don't live to the age of Methuselah nowadays, three score and ten being our allotted span, we strongly disadvise you planting a shelter belt of red cedar, its growth is so slow. Try Austrian pine or Colorado spruce (*Picea pungens*), Colorado white fir (*Abies concolor*), or the Colorado Douglas fir. And for very quick growth, if the Norway spruce thrives in your neighborhood it may be the best to use.

FRUIT TREE QUESTIONS.

R. J. R., St. Joseph, Mo., asks:

1. Are ferrets used successfully for catching moles and gophers?

Ans. Not for moles. Get half a dozen Reddick mole traps, and reset them every morning and every afternoon till there isn't one mole left on your place, if you attend strictly to this it won't take but two or three weeks. Then keep a sharp eye and a ready trap for every mole that visits you from your neighbors' fields. As regards gophers write to the Agricultural Department, Washington, for its literature on this pest.

2. Is the California privet a strong grower, and equally as good as the common one for a fence and as hardy?

Ans. It isn't quite as hardy as the common privet, but we should think it is hardy enough in your town; as it is one of the commonest planted of all shrubs look around among your neighbors; some of them must have tried it. As a hedge plant it is better than the common privet and stronger growing, and by running a string or two of barbed wire lengthwise through the line of hedge it will make a good fence as well as a good hedge.

3. The best remedy for blight on pear trees?

Ans. Candidly the blight on the Dosoris pear trees has ignored every antidote we have tried, and the destruction among them during the past two years has been very disheartening. The moment we discover a bit of blight we cut the limb considerable below the blighted part, and in this way try to keep them clean. And for faith's sake spray with Bordeaux mixture, beginning in April.

4. Are ashes, iron, and salt good as a preventive of pear tree blight?

Ans. We don't know, but we cannot understand how they could be; ashes are fine for pear trees though.

5. I have a cherry and plum orchard one year planted, on poor land, and will cultivate it all next summer. Should I mulch around the trees with manure, or spread it broadcast and plow it under, manure costs fifty cents a load delivered.

Ans That's cheap enough. Put on a good dressing all over the land and plow it well under, but don't plow deep near the trees; then around the trees and for three or four feet out from them place a good mulching of the rankest of the

manure but keep it back from touching the trunks of the crees. But this mulching isn't much better than frequent and loose cultivation.

STRAWBERRIES.—Parker Earle is a very productive strawberry, but it succeeds only on very rich, moist soil, and is rather deficient in firmness. Berries from young plants of Lady Thompson I find are round and large. Greenville is the largest productive berry, and Woolverton the firmest large one. Woolverton, Tennessee Prolific and Gandy are among the best pollenizers for large pistillate varieties. Haverland is good, too, but soft fruited. Beder Wood is an excellent early variety. Warfield isn't well adapted to the south. O. W. B.

N. C.

MELON SEEDS, NORTHERN GROWN.—We thank H. T. T., Huntley, Ill., for a generous supply of three kinds of melon seed of his own saving. They were sent in response to our appeal for northern-grown seeds (page 170). He writes: "I always select the best and earliest melons to save seeds from, and we seldom have a poor one from these seeds I have tried a great many times to get good seeds, northern grown, but seldom succeed. These melons are better for home use than for market."

The Vegetable Garden.

THE VEGETABLE GARDEN.

About the first of February I sowed some lettuce seed in flat boxes filled with light soil in the greenhouse. As soon as the seedlings were in their first rough leaves I transplanted them two inches apart into other flats. About the first of March these were transplanted into hotbeds previously prepared of stable manure, hot, moist, and packed solidly two and a half feet deep. A sash of radish can be had in the same frame. From the first to the middle of March is a good time to sow tomatoes, egg plants, peppers, cabbage and cauliflower. Sow them in flats in the greenhouse or in the hotbed. When they are well up transplant them into beds in the hotbeds or farther apart into boxes in the greenhouse. Early Ruby is a good early tomato, and Table Queen, Crimson Cushion, and Dwarf Champion, good main crop sorts. Snowball cauliflower is good enough for all the time. For an early cabbage Jersey Wakefield is my mainstay, to be followed in summer and fall with Succession and Autumn King. From now on I sow lettuce every two weeks, using Big Boston for frames and early outdoor planting and Improved Salamander for summer.

As soon as the ground is open and dry enough to work prepare to sow peas. Sow First of All for early, and Juno and Heroine for later. Sow spinach between your rows of peas; it will be out of the way before the peas are fit to pick. Sow it once a week all summer. Also plant onion sets in rows a foot or fifteen inches apart. Sow some beets in moderately good well drained soil, also carrots, and a row of turnips. Wait till danger of frost is past before you sow snap beans or sweet corn. Sow some celery in a cold frame and later prick it off, then transplant it out of doors in beds in rich moist soil for use in summer. But for main crop I don't like sowing before the middle of April. Giant Pascal and Perfection Heartwell are fine varieties.

GEORGE DONALD.

Fairfield, Conn., March 7, 1896.

A GOOD BED OF MUSHROOMS.—I have a splendid bed of mushroons just now. In making the bed I used well moistened strawy stable manure that had been turned two or three times in the bottom and finer manure that had been prepared in the ordinary way on top. The result is very satisfactory—a fine show of mushroons. D. FRASER.

Miscellaneous.

GREENHOUSES IN THE SOUTH.

Close on fifty years' practical experience in this part of the south (Memphis) has revealed to me the why and wherefore of greenhouse buildings for use here. I soon found that one summer was far more injurious and destructive to any glass structure than were six winters; also that such structures between the first of May and the last of September are a hindrance to success, as every plant usually grown in them either wants the cool shade, or full outdoor sunshine in summer. All of our glass houses therefore should be of portable sash and rafters, so that they may be taken apart down to the foundation in spring, and housed and repainted during summer, ready to put up again about the first of October. The beds filled with roses, carnations, and other winter blooming plants should have been planted out and treated as strong outdoor plants just coming into bloom when the house should be re-erected over them. This is the whole story of success with all you grow here under glass, and what magnificent flowers are produced in this way. Permanent structures such as you build up north are a failure here, soon becoming a shaky wreck.

HAMBURGH AND MUSCAT GRAPES.

As to your correspondent raising Black Hamburgh and Muscat of Alexandria grapes down here (see page 89, 90, December 1, 1895) as he views it is impracticable. Between 1849 and 1853, I with others, and ample means proved that it just could not be done. In short these grapes cannot endure our long summers, and you will fail in any attempt to make them. JAMES STEWART.

Memphis Tenn.

[Our correspondent is a nurserymen and not now in the greenhouse business. The following communications showing the other side of the question are from practical greenhouse men. Mr. Plumb used to be manager of one of the largest greenhouse commercial establishments (plants and cut flowers) in Georgia. Mr. Berckmans is the honored president of the American Pomological Society, and in connection with his extensive nursery business has to-day the largest greenhouse establishment in the south.—ED.]

GREENHOUSE FOR PLANTS AND FLOWERS.

In regard to the practicability of greenhouses in the south as far as my experience in Atlanta, Georgia went. I found that greenhouses are just as practicable and absolutely necessary in the south for the cultivation of all plants that are grown indoors here as they are in the north. We grew roses, carnation, chrysanthemums, palms, ferns, crotons and other foliage and flowering plants under glass just as we do here in the east and north. There is very little difference in the condition, as to growing plants under glass between the north and south, except that in the north we have good soil and less sun. Whereas in the south (at least in and around Atlanta) they have plenty of bright sunshine but no good soil, merely red clay on which grass will not grow, except Bermuda grass, sedge grass, etc. But one thing I can say, that for tea roses I never saw finer than what are to be found growing outdoors there in spring and fall.

HAMBURGH AND MUSCAT GRAPES

I had no actual experience in the cultivation of indoor grapes such as Hamburgh and Muscat of Alexandria, but from my experience of the climate, etc., I am almost positive that they could not be grown there except under practically the same condition as in the north. If the climate in the south had agreed with me I should certainly have settled there and gone into the growing of grapes under glass for the eastern market, believing it would pay better than anything else.

Oyster Bay, L. I. WILLIAM PLUMB.

GREENHOUSES.

I can find no reason to change the construction of greenhouses here from those built in the Northern states. The only difference is that we require less piping for heating, and by all means build houses in such a way that ample ventilation can be given, especially during the summer. Portable houses would be expensive and would give no practical results as compared with fixed roofs.

So many classes of plants can be grown in greenhouses during summer that it would require a lengthy article to designate them. As a rule we grow all our young palms, ferns, and especially such classes as caladiums and gloxinias under glass in summer, but we require here more shading than you require in the north, and also, as I stated, ample ventilation. Many classes of plants which could not successfully be grown here in the open air on account of the heat of the summer succeed remarkably when grown in well ventilated greenhouses where the temperature can always be kept several degrees lower than that outside.

BLACK HAMBURG GRAPES have been grown to great perfection in several places here, notably by Mr. Alfred Hartridge of Savannah, who had a very large cold grapery and made a success of both Black Hamburgh, Muscat of Alexandria, and Golden Chasselas Such houses can be built very cheaply, Mr. Hartridge's house being a lean-to or half-span and without artificial heat.

Were it not for a few cold snaps which occasionally happen here during the winter, we could dispense with expensive heating apparatus but in order to guard against sudden falls in the temperature we therefore provide all our houses with hot water boilers, using however half the line of pipes which it would require in you vicinity to heat the houses to the same degree of temperature. As a rule we prefer houses not less than 20 feet wide for growing miscellaneous collections of plants that do not require excessive heat, but for plants requiring a high temperature we use houses 11 feet wide to better advantage. P. J. BERCKMANS.

Augusta, Ga., January 15, 1896.

ARTIFICIAL MANURES.

About this time of year outdoor gardening is in order, we want to fix up our beds

borders and lawns, and one of the first things we think about is what fertilizer to use. Different crops—say root crops as turnips and beets; leaf crops as cabbage and snap beans, seed crops as peas and corn, lawn grass, and shrubbery, and it puzzles us a little to know exactly what to use. Most manufacturers make what they call a complete fertilizer, and this is good for any crop. Our advice to you is, deal direct with a thoroughly reliable fertilizer manufacturing company, and either get a complete fertilizer and use it for all of your crops, or state what your crops are and ask the company for special manures for these crops. Amateurs in general will never bother their heads about an analysis of soil, etc. And we won't burden you with that sort of advice. Get the manufacturer's catalogue when you order and ask for directions for using the manure. Now pray don't be too generous and give your crops an extra dressing lest you may burn them, far better give less than the quantity recommended and a month or two later give the balance of the ration. We have asked the Bowker Fertilizer Co. for some advice on this matter and they kindly reply as follows:

For lawns use our Lawn Dressing, applied at at the rate of 400 pounds to the acre. This fertilizer analyzes 5% ammonia, 5% soluble and available phosphoric acid, 8% total phosphoric acid and 5% potash, and is made wholly from chemicals. This is to be applied in the spring as soon as the ground is in condition to receive it. The grass must be dry while it is being applied, else it will stick to the leaves and burn them.

For trees and shrubs we recommend our Stockbridge Tree Manure, a fertilizer containing 3% ammonia, 7% available phosphoric acid, 10% total phosphoric acid and 10% potash, applied at the rate of from 5 to 25 pounds to each tree broadcast, depending upon the size and the age of the tree and extending out as far as the branches reach. If possible it should be plowed into the soil. For shrubs apply the same fertilizer, from a pint to a quart to each shrub, or at the rate of 10 pounds of fertilizer to 200 square feet of border, to be worked into the soil evenly and thoroughly.

For root vegetables like turnips, etc., we recommend our Stockbridge Vegetable Manure, a fertilizer containing 4 to 5% ammonia, 6 to 7% available phosphoric acid, 8 to 10% total phosphoric acid and 7 to 9% potash. For cabbage, lettuce, asparagus, etc., we have special mixtures, but they will average to run, say for lettuce 4% ammonia, 4% available phosphoric acid and 4 to 5% potash, applied according to suggestions in our catalogue, copy of which we mail you to-day under separate cover.

BOWKER FERTILIZER COMPANY.

GERANIUMS AS BEDDING PLANTS.

Geraniums are most satisfactory and showy plants for outdoor bedding, blooming profusely from setting out time in May till frost ends their career in fall. The varieties that are used here for bedding are as follows:

DOUBLE FLOWERING VARIETIES.

Bruanti, scarlet, one of the best beds; James Vick, deep flesh with dark brown shading; Centaurea, deep pink, large flower; S. Nutt, dark crimson; Sarah Bernhardt, dark crimson, Amalie Bullet, white; Souv. de Mirande, pink; Dr. Jacobs, salmon; Binner Boutard, salmon;

[CONTINUED ON PAGE 204.]

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Leon Walduck, deep pink; Pres. Leon Simon, carmine, Mme. Thibaut, deep pink; Ernest Lauth, carmine.

SINGLE VARIETIES:

Marie Hoste, crimson with white center; Ralph, pure red; Jean Sisley, bright scarlet, Clemence Boutard, white; W. Holmes, scarlet; Mastodon, scarlet; Queen of the West, scarlet; Rev. A. Atinson, brilliant crimson, is still used a good deal as a bedder and on account of its low creeping habit and charming color, besides being very free flowering was undoubtedly one of our best bedders, but of late years it has got the bad habit of taking a rest during the hottest part of the summer and should therefore be discarded.

VARIEGATED VARIETIES.

Mountain of Snow, silver edged; Mme. Salleroi, small leaves with white edges, a beautiful border plant; Bronze Medal, golden bronze, dark zone with scarlet flowers; Happy Thought, large yellow blotches in the center of the leaves, rich rose flowers; Mrs. Pollock, bronze zone, gold edge. JAS. JENSEN.

Humboldt Park, Chicago, Ill.

CANNAS.—A reader asks for a few good cannas. Try Alphonse Bouvier, Charles Henderson and Flamingo in the way of crimsons: Eldorado as a yellow; Florence Vaughan, spotted yellow; Egandale for vivid effect at a distance; Madame Crozy, yellow edged, and Queen Charlotte as a deeply golden-banded variety. All of the above are comparatively inexpensive. But if you want a gem in the way of Queen Charlotte, try Souvenir d'Antoine Crozy; it is expensive yet, though; probably a dollar a plant. Of course, if one can afford it, he should also try the new Italia, but it costs $5.

THE EGYPTIAN LUFFA, or vegetable sponge.—I sent you some seeds of this interesting member of the cucumber family. They were obtained from plants grown in a warm greenhouse by Mr. James C. Sage at Tarrytown. He got the seeds from a traveler from Egypt. The fruits are cylindrical, fibrous, and contain many seeds; the dried fruit divested of the seeds becomes like a fine sponge and as such appears in commerce.

New York. J. I. DONLAN.

GARDENING grows better with every issue, it is almost a snare to me, it is so delightful. R. A.

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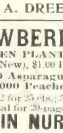

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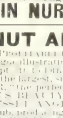

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We have received the January issue of *The Coil Spring Hustler*, and find it full of interesting matter pertaining to fencing. If any of our readers are not receiving that paper a copy will be mailed them gratuitously by addressing the Page Fence Co., Adrian, Mich.

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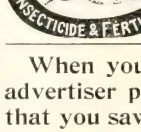

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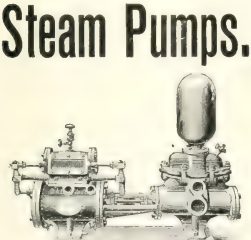

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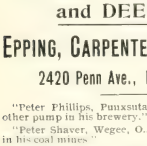

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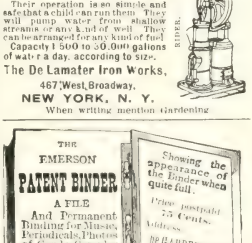

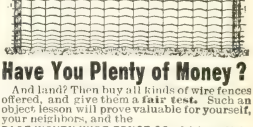

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30 Strawberry Plants, 6 each Oriole, Ideal, Giant, Tubbs and L. Thompson, postpaid, $2.50; 1000 best 4 kinds, purchaser's expense, $2.50; 12 Miller Raspberry, 10 Peach trees and 1 Ridgely Chestnut, postpaid, $2.50. Millions of Plants, Peach, Apple, Pear and Nut trees.
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GARDENING

Vol. IV. $2.00 A YEAR. 24 NUMBERS. CHICAGO, APRIL 1, 1896. SINGLE COPY 10 CENTS. No. 86.

MR. BARR'S BEGONIAS.

The Greenhouse.

BEGONIAS AND HOW TO GROW THEM.

The accompanying illustration, engraved from a photograph, shows a group of begonias, ferns and foliage plants in the winter garden greenhouse of Mr. Wm. Barr of Orange, N. J. The begonia in front in flower is *Manicata aurea variegata*; the fern immediately below it is *Davallia Fijiensis*; those to the left and right are *Adiantum cuneatum*. The Rex begonia to the left in front of the adiantum is *grandis*: the one in front of the fern to the right is Robt. Jenkins. In front of *grandis* is Bertha MacGregor, and that below Robert Jenkins is *B. Rex* Fire King. The little plant in flower at the right hand corner is the violet flowered *Saintpaulia ionantha*. In the groups are also the following varieties of *Begonia Rex*: Louis Closson, Perle Humfeldt, President Carnot, Eclipse, Miranda, Mme. Treyve, Mme. Lemoine and Queen of Hanover. The pendent begonias are *Begonia glaucophylla scandens*, coming into bloom. The upright plant in the right hand corner is *Dacrydium cupressinum*. The little palms showing through the begonias are *Cocos Weddeliana*, which we find very useful for table decoration.

HOW WE GROW BEGONIAS

We make leaf cuttings of the Rex section in January, cutting the leaves into V-shaped sections where the veins of the leaves meet, and put them upright in the cutting bench. As soon as rooted they are potted into 2-inch pots and repotted on as required. The soil should be a little lighter than that for the flowering section. The pots should be well drained. We grow them in the greenhouse well shaded all the summer, though they will do very nicely in a shaded place in the garden planted out in the summer. In fact we use all of our old plants for bedding out in shady nooks in rockeries, and for edging beds of fuchsias at the north side of buildings. If they are required for winter decoration they should be lifted and potted early in September. Indoors they like genial warmth, shade and moisture without sourness.

The following sorts are exceptionally good; Louise Closson, Comtesse Louise d'Erdody, Magnifica, Queen of Hanover, President Carnot, Enfant de Nancy, La Perle de Paris, Mme. Treyve and Fire King.

Of the upright growing or *discolor-Rex* section, which make fine specimens, the following are reliable varieties: Bertha McGregor, Beauty of Richmond, Annie Dorner, Perle Humfeldt and Clementina.

The flowering begonias we root in March, pot on as required and plant out in June in a partially shady position in the garden. For a few weeks after planting out we place twigs between them to give them a little shade for a short time and till they get inured to the sunshine. About midsummer we pull these twigs out and lift and pot the plants the first of September. We don't shade these in winter, except a few, such as Olbia and *metallica*.

The following are well known and proved varieties: *Manicata* and its variegated form, *Gilsoni*, Dr. Nachtigal, Paul Bruant, *Nitida alba* and President Carnot, all free flowering sorts; *Sandersoni*, *multiflora* and *miniata*, coral flowered, and all good for hanging baskets or for pots or vases, or for bedding out in shady places. *Rubra* is a well known sort with scarlet rose colored flowers, and is a fine plant for the window or conservatory in winter. *Glaucophylla scandens* we grow in suspended pots; it continues in bloom from the middle of February till the end of April. As soon as it has finished blooming we take cuttings and when they are rooted pot them into 2-inch pots, and when they fill these with roots repot them, placing three plants into a 6-inch pot. We grow them entirely indoors in a shaded greenhouse, and in the fall suspend them from the rafters. When we bring in our begonias in the fall we fumigate them twice a week for two or three weeks to keep down thrips. The soil should be three parts fibrous loam, one part rotted manure and a good sprinkling of sand.

It is now time to start the tuberous rooted begonias. Choose small young tubers and avoid old hollow crowned ones. This section requires a stronger soil than the other. They bed out nicely in a partially shaded situation, and make nice effects for the decoration of the greenhouse during summer and fall.

Baronald, N. J. Wm. Fitzwilliam.

GREENHOUSE QUESTIONS.

J. B. M. writes: "I have a greenhouse 38 feet long by 16 feet wide, equal span, heated by hot water, and running north and south. One half of it I use for roses, and the other half for miscellaneous plants, with a propagating part 8x16 feet.

1. "Can I propagate carnations and roses on the bench without having it cased up underneath for bottom heat?"

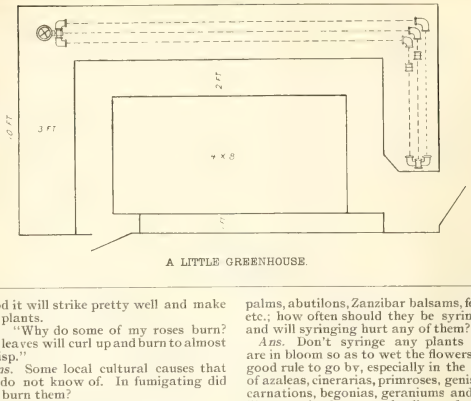
Ans. Yes, perfectly well; they will take a few days longer to root. Be particular about having the slats in the bottom of the bench far enough apart to admit of ready drainage, and shade from sunshine.

2. "Do I need tepid water for watering the cuttings?"

Ans. No, not at all; better keep a barrel or tank of water under the bench in the greenhouse, and use the water from this.

3. "What part of the shoot makes the best cutting—the tip end or the hard part at the base?"

Ans. We like the middle part of the shoots of roses; the tip is too soft, and while the lower part may have harder wood it will strike pretty well and make nice plants.



A LITTLE GREENHOUSE.

4. "Why do some of my roses burn? The leaves will curl up and burn to almost a crisp."

Ans. Some local cultural causes that we do not know of. In fumigating did you burn them?

5. "When should I plant out my young roses on the benches for next winter's flowers?"

Ans. The end of May or in June.

6. "I potted canna roots yesterday; is it too soon?

Ans. Oh no! keep them cool and somewhat dry, and let them come along stocky.

7. "Mealy bugs on plants, best remedy?"

Ans. Brush off the roughest of them, then prepare a bath of a solution of lemon oil, and dip the plants in that according to instructions accompanying the insecticide.

8. "Why do heliotrope leaves blacken in summer?"

Ans. On account of a microscopic parasitic insect commonly called rust. On outdoor plants it is incurable. Root out and throw the plants away, and get fresh, clean stock. Some varieties, as Roi des Noirs, are particularly subject to this pest.

9. "Best temperature to force roses?

Ans. A night one of 56° in winter, with ten to fifteen degrees higher in summer; as the spring advances, a proportionate increase.

10. "Temperature for the other plants?'

Ans. That for roses will do for most anything, but palms, crotons, anthuriums and the like may prefer 5° to 10° more; and azaleas, primroses, cinerarias, carnations, etc., 5° to 10° less.

11. "Is it necessary to syringe all greenhouse plants before fumigating the house so as to better preserve the foliage of the plants?"

Ans. It is generally conceded that wetted leaves are not so susceptible to injury from tobacco smoke as are dry ones, and that the wetting doesn't save the aphides or thrips from the deadly fumes; that being so, syringing is of partial help; but don't get the idea into your head that syringing is a complete safeguard against injury from tobacco smoke, as it isn't at all. In fumigating never let the smoke get hotter than 120°, and no harm will ensue. Some plants, as heliotropes and cinerarias, are very susceptible to injury from tobacco smoke or vapor; the only protection for them is cold smoke, and not too much of it.

12. "About syringing. In my greenhouse are begonias, cinerarias, primroses, palms, abutilons, Zanzibar balsams, ferns, etc.; how often should they be syringed, and will syringing hurt any of them?"

Ans. Don't syringe any plants that are in bloom so as to wet the flowers is a good rule to go by, especially in the case of azaleas, cinerarias, primroses, genistas, carnations, begonias, geraniums and the like; even in the cases of callas and roses, while syringing does their foliage good, it doesn't benefit the blossoms. Palms, anthuriums, rubber plant, marantas and the like may be syringed twice a day with benefit—once in the morning or early in the forenoon and again early in the afternoon. Most ferns are benefited by occasional syringing providing the surface moisture dries up quick, but they should never be wetted on top when they are still damp, or at this time of year late in the afternoon. Maidenhair and powdery ferns are not benefited by overhead wettings except in the case of very young plants.

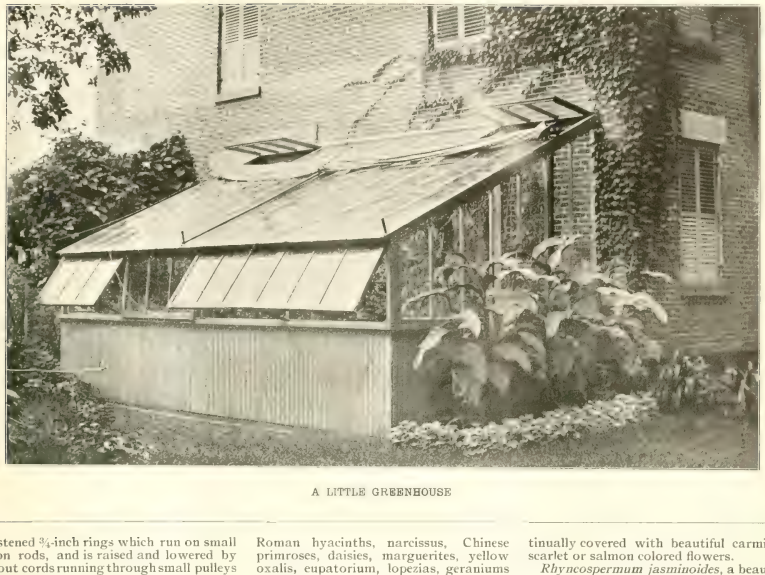
MY LITTLE GREENHOUSE.

The little lean-to greenhouse of which I send a photograph (taken last September) is the outgrowth of a desire to have a place for plants that would be more suitable than the dwelling house windows, which were always filled in winter. I would advise every one who has a love for flowers, and the convenience to build a little greenhouse, to do so, but don't forget that while there is a great deal of pleasure in cultivating plants there is too plenty of work connected with it.

This little greenhouse is on the south side of my dwelling, is 18 feet long, 10 feet wide, 6 feet high at the eave and 10 feet at the back. Strong cedar posts were set into the ground 3 feet deep and upon these, inside and out, 1-inch matched boards were nailed, forming an air space; on the outside of this was put heavy building paper and outside of this again 1-inch grooved siding as you see in the picture. The manner of building the frame is also shown. It is all 2x4 scantling except the two plates, the lower one of which on boarding being 2x8, the upper one, at the eave, 2x6.

The sashes on ends were made separate and then fitted in; these and the sash bars on roof were fastened in their places with screws. The bars in the end sash are ¾x1¾ inches, the bars on roof are 1¼x2 inches. The woodwork was given three coats of paint before the glass was put in. The glass used was 16x24 inches double thick, and butted, and bedded in white lead putty.

The roof in summer is shaded by an awning of thin muslin to which are



A LITTLE GREENHOUSE

fastened ¾-inch rings which run on small iron rods, and is raised and lowered by stout cords running through small pulleys at the top.

The heating is done by a small base burner hot water heater in cellar of dwelling, the flow and return pipes run through the wall, each connecting with three lines of 2-inch pipe. The connections are formed with elbows and crosses and are lighter and neater than were cast branch tees used. The heater works nicely when regulated properly which is a very important matter. Have a damper in stove pipe and when starting the fire open the damper to heater and in pipe, and close the door; after the fire is burning nicely, and the water is hot, close the damper to heater, and partly close the one in the pipe and open the heater door a little; experience will teach how to regulate these to the amount of heat required.

In contemplating building a greenhouse of this kind the first thing considered is the expense, and as material and facilities for buying vary in different places, the best way to get at the expense is to explain to a good carpenter what you want, he ought to be able to tell *just* what it would cost. [Rather send to one of the firms dealing in greenhouse materials and advertising in GARDENING, giving a diagram of your intended greenhouse, and stating exactly what you want, and ask what they will furnish the materials for. They can supply the materials all prepared far cheaper than the village carpenter can get it cut out for.—ED.]

Write to any reliable dealer in hot water heaters, giving size of greenhouse and amount of glass surface, he will inform you as to heater and how much pipe you will need.

The plants I grow in winter are a general collection, such as callas, freesias, Roman hyacinths, narcissus, Chinese primroses, daisies, marguerites, yellow oxalis, eupatorium, lopezias, geraniums and manettia vines; all these are in blossom now, and later will come petunias, pelargoniums and Easter lilies. Plants mostly grown in the summer are fuchsias and begonias. I have a little propagating bed of clean lake sand in the warm end of the greenhouse in which are easily rooted all the cuttings needed. Under the side bench is grown a species of selaginella [*Kraussiana*.—ED.] which makes a carpet of mossy green, and under the end bench without pipes are planted a few varieties of ferns, including maidenhair.

In a long narrow box next to dwelling house wall are grown nasturtiums trained on a wire netting, and they do nicely and are just beginning to blossom. Cuttings of them are taken in the fall and rooted in water.

The diagram of inside of the greenhouse shows the position of the benches, path, pipes, expansion tank, outside door and door into dwelling, which last is two steps up from greenhouse floor.

The vine shown on the corner of the dwelling is *Ampelopsis Vetchii*, the large leaved variety [*Roylei*.—ED.], a very rapid grower. The cannas are of a large variety grown for its foliage. The low growing plants are Madame Salleroi geraniums, and they make a very pretty border. J. H. SMITH.

Milan, O.

GREENHOUSE PLANTS IN BLOOM.

We have the following plants now in bloom *Eranthemum pulchellum*, a plant of easy culture bearing small blue flowers. *Mahernia odorata*, a neat little greenhouse shrub bearing pretty yellow bell-shaped flowers, it is readily increased from cuttings. *Impatiens Sultani* is continually covered with beautiful carmine scarlet or salmon colored flowers.

Rhyncospermum jasminoides, a beautiful sweet scented and free flowering climbing plant, whose white jasmine-like flowers perfume the whole house. The white pea flowered swainsona, heliotrope and mignonette. The last named is disbudded by the florists in order to secure long flower stems.

Plants of *Azalea mollis*, *Bougainvillea glabra*, and its variety *Sanderiana*, are also in bloom. The bougainvillea will be very fine by Easter, and is exceedingly useful for cutting and decoratitive purposes. WM. FITZWILLIAM.

BROMPTON STOCKS IN WINTER.—We wintered some Brompton stocks in a cold frame and brought them indoors a few weeks ago and now they are making a nice show in the greenhouse and are so sweet. Forget-me-nots also brought out of the cold frames about a month ago are in fine bloom in the greenhouse; the varieties *Victoriæ* and *semperflorens* seem to be the best for this work, *palustris* and *alpestris* haven't bloomed so well with us. D. F.

POLYANTHUSES.—We have had these in fine bloom in the greenhouse for a couple of months, and we are getting them in the cold frame, and if we plant them out we can have a nice show of them out of doors from the middle of April till after the middle of May.

SCILLA PERUVIANA OR CLUSEI is in flower; what a gem it is for forcing, and it lasts in bloom so long!

OUR CINERARIAS are mostly past and cleared away to make room for seeds, etc. Our next show will be of fancy and

SHOW PELARGONIUMS, of which we have a fine stock in five-inch pots raised from cuttings struck last fall. D. FRASER.

TABERNÆMONTANA CORONARIA.—M. G. B., Pinewood, Iowa, has a plant of this

"over a foot high, and now has twenty buds, some an inch and a half long, but they won't open and several of them have already fallen, and the petals were so tightly twisted they could not be separated without tearing." *Ans.* The trouble is local. This plant is an evergreen tropical shrub near akin to the oleander; it has creamy, white, fragrant flowers. We grow it in a warm, moist greenhouse where it is also shaded from warm sunshine and it does very well, and blossoms every year.

Trees and Shrubs.

HEADING IN TRANSPLANTED TREES.

Thomas Meehan & Sons' catalogue is neat and attractive and contains a commendable feature; it devotes a page to planting and pruning, illustrating the latter, and in its descriptions of several trees it repeatedly calls attention to the necessary cutting back at planting time. This is an innovation in the right direction. Some of us require even the truth to be literally pounded into us before we heed the advice. We may read a full page of instructions and intend, when planting time comes, to follow them, but we may forget, or the dislike to cut back a graceful looking head overcomes us, and we plant a hundred per cent head with a fifty per cent root and then mourn at the funeral later on. However, when we read, in this catalogue, the description of some tree that we finally buy and plant and come across a sentence like this, "It is a hard wooded tree, consequently it needs severe pruning when transplanted" we are apt to think that we buy the advice with the tree and therefore must use it. The faithful representations of plant life by the use of half tones and photogravures now generally adopted by the leading (not mis-leading) nurserymen also tend towards making their catalogues permanant additions to one's library.

W. C. EGAN.

WHAT DO YOU CALL "FLIEDER" (GERMAN) IN ENGLISH?

G. A., Butler, Pa., writes: "I would like to know the English or botanical name of the German shrub that we call "Flieder"; its flowers are fragrant. It is much grown in Germany. Can I get it in this country?"

Ans. Any hardy shrub that is common in cultivation in Germany can be obtained here, if you know what to ask for. We submitted your inquiry to Mrs. Seliger, a German lady who is an accomplished horticulturist. She kindly replies as follows:

"Flieder" in Germany is the common lilac (*Syringa vulgaris*) with all its manifold variations in single and double flowering kinds. Further, the name "Flieder" is there applied to our elder (*Sambucus*). This is also called by people who know the difference "Hollunder." Its cream-colored, broad umbels of flowers are often used for tea, "Flieder" tea against cold. The berries are used for wine, and also preserved with sugar.

MRS. WILHELMINE SELIGER.

GRAFTING THE CAMPERDOWN ELM.

A reader wishes to know what stock he should use to graft this elm on.

Ans. *Ulmus montana*, commonly known as the Scotch or wych elm is the proper stock for it. *U campestris*, the English elm, will also answer, but it isn't as good as the wych elm. The American elm will not do for the Camperdown or any other European kind, grafts put into it may live and make a little growth, but the result is always the same—a speedy end.

STOCKS FOR CHINESE MAGNOLIAS? *Ans.* Inarch them on *M. acuminata* or on *M. tripetala*, and separate the cion from the mother tree the following spring; or you may layer them next summer and have the layers unseparated till the spring of '97. You may also try half-split grafting about the end of April, but it will be very uncertain. J. R. TRUMPY.

Kissena, L. I.

A HEDGE FOR ST. LOUIS.—H. A. B., "wants something that will not take up too much room." *Ans* Probably there is nothing better than the California privet, but you must keep it well pruned back else it will assume considerable dimensions in height and width. Don't hesitate about asking questions, we are here to answer them.

Landscape Gardening.

PLAN FOR A FOUR ACRE PLACE.

The accompanying plan made for Mr. J. R. Foster of Lancaster, Pa., shows a convenient and effective arrangement when it is desired to devote a greater part of the ground to ornamental purposes. Space is received for vegetables and small fruits, and perennial and annual flowers are to be grown in connection with these, so that the vegetable garden will be beautiful as well as interesting and useful.

The house is placed on the highest portion of the grounds, which gently fall to the south and west from the house.

EXPLANATION OF PLAN.

1. Cherry trees.
2. Cut leaf birch.
3. Weeping hemlock.
4. Rose flowered weeping Japan cherry.
5. Grape vines trained on trellis.
6. Peaches.
7. Dwarf apples.
8. Quinces.
9. Dwarf pears.
10. Chinese magnolias.
11. Japanese maples and *Magnolia stellata*.
12. *Retinospora plumosa aurea*.
13. Cut leaf birch.
14. Pin oak.
15. *Abies orientalis*.
16. Scarlet maple.
17. Purple beech.
18. Mugho pines.

19, 19, 19. Massed planting of trees and shrubs.

20. English beech.
21. *Pseudotsuga Douglassi*.
22. Specimen shrubs and small conifers, surface of ground carpeted with creepers.
23. *Sciadopitys verticillata*.
24. *Retinospora filifera*.
25. Wier's cut leaf maple.
26. *Kœlreuteria paniculata*.
27. Colorado blue spruce.
28. *Picea polita*.
29. Nordmann's fir.
30. White-leaved weeping linden.
31. Supar maple.
32. Double red thorn.
33. Large black walnut now on grounds.
34. Evergreens and shrubs.
35. Silver maple.
36. *Abies concolor*.
37. *Magnolia Soulangeana*.
38. Pin oaks.
39. Border for hardy herbaceous plants.
40. Border for spring and summer flowering bulbs.
41. Border for annuals.
42. Border for hybrid perpetual roses.

In addition to the above planting vines are to be planted to cover porches and house walls and the grounds and vegetable garden are to be enclosed and the tennis court to be partly enclosed with a hedge of California privet.

J. WILKINSON ELLIOTT.

Pittsburg, Pa.

The Flower Garden.

SWEET PEAS.

Just as soon as the ground is open enough from frost sow your sweet peas; but don't sow them all at once, better sow a good third as soon as possible, another third as the first lot is above ground, and the balance when the second sowing is about two inches high. We get very little good of later sowings. Of course we must try the new varieties mentioned, page 139—America, Blanche Burpee, Bride of Niagara, Daybreak, Extra Early Blanche Ferry, Gray Friar, Juanita, Katherine Tracy, Oddity, Ramona and Meteor, also Cupid. But because of their newness and expensiveness we shall grow them on probation to see them and know them rather than to depend on them either for a display or for cut flowers.

In buying sweet pea seed don't deal in packets any more than you can help, except in the case of new varieties, but buy in ounces or ¼ pounds. If you cannot have but one lot get Eckford's Mixed. Because a variety is old is no reason why it should be inferior, indeed some of the old sorts are among the best we have got. At Dosoris we grow not only a large assortment of varieties, but sow about four pounds of sweet pea seed a year, as we have to supply a very large demand for their cut flowers. The following are our mainstays. The descriptions within quotation marks are from our private notebook taken last summer in the sweet pea field.

BLANCHE FERRY.—Pink and white, early, and the best of its color. "It opens well and keeps its color well."

BORFATTON.—Deep maroon self, the darkest colored of all. "Grand, one of the best in health, freedom of flowering, and lasting."

EMILY HENDERSON.—White, early. "A fine white. In all other points a counterpart of Blanche Ferry."

HER MAJESTY.—Large, bright rose pink. "With purplish magenta glow, but healthy and opens fine."

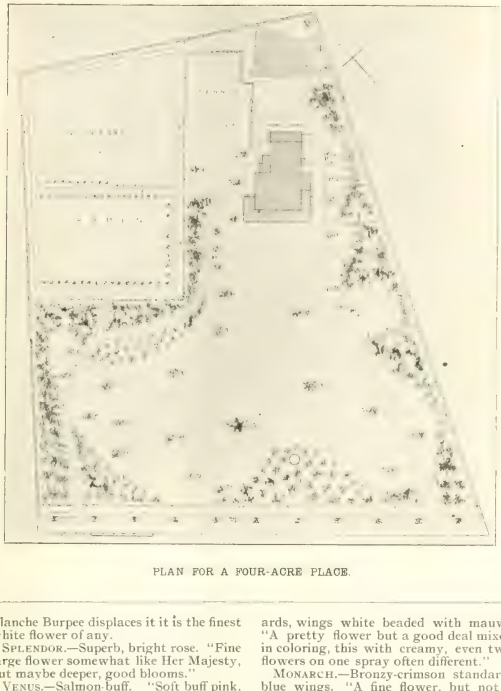
CARDINAL.—Crimson-scarlet. "Excellent, not much unlike Ignea and Invincible Scarlet; very free, but not large."

FIREFLY.—Crimson-scarlet. "Good, coming a little late, small."

GAIETY.—White ground, much striped with pink. "A bold, fine flower, very distinct and pretty; striped and suffused with bright purplish pink; good grower."

MRS. ECKFORD.—Delicate shaded primrose. "Yellowish white, large, opens well, very good."

MRS. SANKEY.—White, of largest and finest form. "White with palest blush tinge, very large and good." Unless



PLAN FOR A FOUR-ACRE PLACE.

Blanche Burpee displaces it it is the finest white flower of any.

SPLENDOR.—Superb, bright rose. "Fine large flower somewhat like Her Majesty, but maybe deeper, good blooms."

VENUS.—Salmon-buff. "Soft buff pink, pale, but good."

Of the above we will sow ¼ pound of each, and of the following one ounce of each, which shows how our appreciation runs. Everyone of them was grown here last year too.

BLANCHE BURPEE.—White, very large, wide open flower. Perhaps our finest white.

BLUSHING BEAUTY.—Soft pink. "Very pretty when good; often comes spotted; self."

BUTTERFLY.—"Whitish ground, edged and laced with bluish; sometimes flushed with pink; doesn't last long."

COUNTESS OF RADNOR.—"Pale lilac-purple self, not much difference between color of standard and wings; shows veins; fades fast to bluish; otherwise a fine large flower."

DOROTHY TENNANT.—Large, rosy-mauve. "Pale rosy-pink flushed with puce on standard; very pretty but not very free."

IGNEA. — Crimson-scarlet. "Bright, pretty, shows veining, assumes a purplish tinge with age; a better grower and larger flower than Invincible Carmine."

LADY BEACONSFIELD.—Soft salmon standard, pale primrose wings. "Distinct and pretty, but poor health."

LADY PENZANCE.—Bright pink laced with rose. "Pretty rose pink, darker veins. Fine health, free bloomer, good."

LOTTIE ECKFORD.—Pale mauve standards, wings white beaded with mauve. "A pretty flower but a good deal mixed in coloring, this with creamy, even two flowers on one spray often different."

MONARCH.—Bronzy-crimson standard, blue wings. "A fine flower, but not a very attractive color."

MRS. GLADSTONE.—Blush or soft buff pink. "A very beautiful flower, not so free as some."

OVID.—Rosy-pink with rose margins. "Pretty in its way, but poor health."

PRIMROSE.—Pale primrose. "Maybe deeper in color than Mrs. Eckford, but not so good a flower."

PRINCESS BEATRICE.—Rose pink. "Very pretty self, but not large."

SENATOR.—Large, shaded and striped chocolate on creamy ground.

STANLEY.—"Like but claimed to be better than Boreatton. It certainly is a splendid flower; fine color, fine size, often four blooms on a spray; good health and lasts well, but we couldn't tell it from Boreatton."

Among other popular varieties we found Adonis too small; Alba Magnifica, not so good a white as Mrs. Sankey; American Belle wouldn't bear spots; Apple Blossom wasn't as good as Blanche Ferry; Captain Clarke was out of place alongside of Gaiety; Captain of the Blues was excellent, but we didn't like the color; Duke of Clarence was very fine too, healthy and free, but in the face of Boreatton we could omit it; Emily Eckford was a large fine flower, but faded to an unpleasant hue; Orange Prince was more odd than beautiful; Princess of Wales was the best of the bluish variegated flowers, still not a bloom we would hanker after; and so on. But tastes differ so much that each one should make a selection for himself and not be guided by others.

HARDY FERNS.

A Massachusetts subscriber asks: "What are the best half dozen hardy ferns for a shady fairly moist position, at the northeast of my house?"

Ans. The following are always ornamental, easily grown, and well adapted to the location described. (1) *Adiantum pedatum*, the well known maidenhair. (2) The bulbous fern, *Cystopteris bulbifera*, has long delicate fronds, finer than those of its sister species, *C. fragilis*, while the bearing of bulblets is rather anomalous for a hardy species. It is well suited for clefts in rocks, but grows quickly in any rich woody soil. (3) The ostrich fern (*Onoclea Struthiopteris*) is one the largest hardy species, and its long plumes are very ornamental, the graceful vase-form crowns resembling a cycad or a zamia. (4) The cinnamon fern *Osmunda cinnamomea* is another good sized species worthy of a place in any fernery, while its regal relative, *O. regalis*, is distinct and valuable and it is hard to say which is the better. The aspidiums give good results, (5) *A. spinulosum* and (6) *A. acrostichoides* being especially nice, though *A. marginale* is well worth growing; these three have evergreen fronds, while the other species named above die to the ground in autumn. Some of the beech ferns (*Phegopteris*) and aspleniums are very pretty, as are other species of aspidiums. If there are rocks some cliff brakes, as *Polypodium vulgare* or *Aspidium ebeneum* or *Trichomanes* would fit in well, and if limestone is present the walking fern (*Camptosorus rhizophyllus*) would make a very interesting addition. An assortment of the kinds recommended will give you a good effect throughout the year and require very little care after the original planting.

WM. H. HARRISON.

Lebanon Springs, N. Y.

THE BEST GERANIUMS FOR OUTDOOR BEDDING.

After having tried every variety of geranium that has been introduced into the country for many years I have no hesitation in recommending the following as being the best of their kind for planting out of doors in flower beds in summer.

SINGLE FLOWERED VARIETIES.

Scarlet—W. A. Chalfant, Lowell.
Pink—Benj. Schroder, Barbizet.
White—Mrs. J. M. Gaar.

DOUBLED FLOWERED VARIETIES.

Scarlet—J. J. Harrison, Ville de Poitiers.
Pink—Beaute Poitevine, L. Contable.
White—Mme. Ayme Chevralierre, Hermine.

E. G.

SNOWDROPS AND WINTER ACONITE.

The first flowers to open with us were single snowdrops on the 9th of February. We gathered a nice bunch of them twice a week. They are growing on the edge of a well sheltered border, and they are still in fine bloom. The Elwes's Giant snowdrops planted last fall did not begin to bloom till the 25th of last month. Although planted in a sunny part of the garden and in good rich soil the flowers are no larger than common snowdrops; we are disappointed with them [The true Elwesi is a very pretty snowdrop and larger than the common ones.—ED.]

The winter aconite is in nice bloom. What a lovely little gem it is with its yellow blossoms nestled in a cup of green

leaves; it makes a nice showing all alone. We have it planted in a bed filled with lilies and ferns in a sheltered place; the ferns die down in fall and the aconite covers the ground in spring. But in some open spots in the garden the aconite is quite at home and blooms at the same time as in the fern bed. D. FRASER.

Mahwah, N. J.

SOME NEW CANNAS.

A good many of us thought after first making the acquaintance of Mme. Crozy, that the height of perfection had been reached, and that we should see nothing finer. We thought, when Queen Charlotte was introduced, that this, indeed, was the *ne plus ultra*. It is true that these two fine gold laced varieties still average very high in all the essential points that go to make up a fine canna, and still when brought before a group of Souvenir d'Antoine Crozy and Mme. A. Bouvier we are delighted with the brilliance of the colors and the size of the trusses of the new comers. Mme. Bouvier has been called the "orchid flowered canna," so brilliant is it in color and so tropically beautiful. Mme. Crozy looks dull in color beside it, the yellow is applied very irregularly and is carried down into the throat of the flower, the floret is large and spreading.

Souvenir d'Antoine Crozy is dazzling in color and bears an enormous truss, it stands at the head of its class. A very dwarf addition to the gold banded cannas is the charming little Gloire de Montet; it may be described as a low growing Queen Charlotte, and is one of the most useful and brilliant among all the newer cannas.

Among yellows, two fine dwarfs, each only about 2½ feet in height, are Cote d'Or and Comete; the former has a peculiar amber blotch in the throat, the color beautifully applied as in the yellow iris.

It is rather an odd coincidence that among the reds F. R. Pierson, Ami Pezeux and A. Billard should all be of the same charming shade of soft glowing red, and all fine broad petaled varieties, originating at nearly the same time, yet at places thousands of miles apart: "Pierson red" is now a common expression among canna growers. Another gorgeous American variety is Flamingo, it is well named and very near perfection in every point. Still another, Columbia, is probably the forerunner of hardier, heavier textured varieties; it is one best to withstand the winds and rains.

In odd colors, Mme. Perrin des Isles is of a peculiar shade of begonia pink; the petals are long, but this variety would be more valuable if they were broader in proportion. John Laing is of the peculiar reddish copper tint found in J. D. Cabos, and is very bright and striking, with flower of elegant form.

We are glad to know that our three American novelties (Pierson, Columbia, Flamingo) rank well up with the finest of the French sorts; there are other novelties of the year which are quite as good as those described above, notably Papa Canna, red; Obelisque, gold laced; Acme, a grand yellow 3 feet high; E. G. Hill, soft red; Director Roelz, salmon scarlet, an unusually well formed large flower; Capt. Romani and Mme. Rozain, intermediate shades of red, and Mlle. Liska Lorenze, a variety that glows with "incandescent" color, salmon, orange and light scarlet. These novelties are a distinct advance over recent introductions. To be sure they have been selected, and the under tow has carried away quite a number of the introductions of 1895, and which we think will never again be heard from in this country. E. G. H.

CANNA FLAMINGO

SOME OF THE NEWER HARDY PERENNIALS.

Astilbe Chinensis thrives in any good garden soil, but prefers a slightly damp position. It has the habit of the Japanese species, but is bolder and its pinnate leaves are larger. Its flowers are white tinged with pink and are produced in large plumes on erect leafy branched stems which are about three feet high.

Campanula percicæfolia alba grandiflora is an improvement on the well known white flowered variety and should be largely grown. It is stronger in body and more floriferous than the common white one and its blooms are larger. It likes rich soil, good light, and to be kept away from the roots of trees.

Scabiosa Caucasica alba is a white flowered form of the Caucasian scabios. It grows best in a light rich sandy soil and in an open position. Its flowers are produced on stout stems and are about three inches across.

The Himalayan mandrake (*Podophyllum Emodi*) is hardy here and well adapted for growing in damp shady positions. When in bloom it is not showy but shortly afterwards its handsome, large, coral red fruits appear and last on the plant for a long time.

Anemone Japonica Whirlwind is a comparatively new variety differing from the old white one in having more than one row of petals; but in other respects the difference is very little. It grows well here and flowers profusely in the fall. A deep, loose, rich soil and a partially shaded position suits it well. It is very easily increased from root cuttings.

Aster Maackii is a hardy perennial species received from the Botanical Garden at St. Petersburg, that grows about two feet high and has leafy stems and large, lilac purple flowers and it blooms nearly a month earlier than most of our native asters.

Aubrietia Leichtlinii is a pretty dwarf prostrate mat-like plant suitable for the rock garden. If planted in a slightly elevated position and in light sandy soil it will live through the winter, and in early spring become covered with pretty small, crimson flowers. R. CAMERON.

Botanical Garden, Cambridge, Mass.

THE EUROPEAN WILD PRIMROSE.—L. A. N., Akron, O., writes: "I had some seed sent to me from Italy, and among them was a packet of 'Primavera,' but I cannot find this name in any book. What is it?" No doubt *Primula vera* is the name meant. It is the common wild yellow primrose that grows so abundantly in the woods in Europe. It is a beautiful little plant under cultivation here, thriving best under the same treatment as we give to polyanthuses; it likes moisture and thin shade in summer and dislikes heat and drouth at any time. While we have had it live out of doors along with the pansies fairly well in winter, it is particularly grateful for a cold frame.

BOILING CANNA SEED.—C. H., Kansas City, had two lots of seed, and preparatory to sowing them he placed each lot in a separate bowl and then poured boiling water over them, one bowl was left open and the water in it soon cooled, the other was covered by a close-fitting lid, and the water in it remained hot for a long time. After the water got cold the seeds were sown in drills in a hotbed, and those from the open bowl have germinated nicely, but not one from the closed bowl has sprouted. He asks, why? We won't pretend to decide in his case but will speak in a general way. We scald canna seed by pouring hot or boiling water over them to crack or soften the hard outer shell, that's all, while it may be all right to continue keeping the seed in a warm water soak over night or for forty eight hours if no impression has been made on the outer shell before that time, aside from the first scalding the water should

CANNA MME. A. BOUVIER.

not be kept steadily at a higher temperature than 110° or thereabout, else the seed may be killed. But it is astonishing the amount of hot soak some seeds will bear, especially those of the pea family, without being injured. The moment the skin cracks or softens (which can be discerned by the swelling of the seed) the seed should be removed from the soak and sown or kept moist till the general sowing is done. Even after a couple of days' soaking, and two or three scaldings we have found seed that showed not the least sign of softening. We sow them as they are and wait their convenience to sprout, be that a month or a year. A hotbed is a poor place for a stubborn seed.

A BOOK ON FLORICULTURE.—W. W. S., Wisconsin, "wants a book on floriculture that will give a new beginner all needed information on the cultivation and care of flowers both indoors and out." *Ans.* There is no such book. Peter Henderson's "Practical Floriculture" is the best in its way; get it from the publisher of GARDENING, price $1.50.

Aquatics.

GROWING WATER LILIES IN TUBS.

The enquiry of A. D. M. in GARDENING, page 196, March 15, reminds me of our experience last year in growing water lilies in tubs. We purchased of a wholesale liquor dealer casks which, when sawn in two, gave us tubs three feet in diameter and two in depth and each having five iron hoops. I think we paid about $1 25 per cask and freight. We procured growing plants in April of nymphæas *candidissima*, *chromatella*, *carnea*, *pygmæa*, *Zanzibarensis azurea* and *rosea* and *odorata rosea*, and kept them in pots in tubs or pails of water in the conservatory, until planted out in the tubs. We found the fibre tubs the cleanest and most satisfactory in which to stand the pots indoors as there was more room for the expansion of the leaves. The soil was prepared as directed in GARDENING's answer to A. D. M. page 196, but with the addition of a 6-inch pot full of bone flour to a wheelbarrow load of soil, thoroughly mixed. Water in the tubs was added as the plants increased in size. We felt well satisfied with the experiment and the amount of bloom was perhaps all we could expect from such restricted quarters. The tubs not being large enough to give the long stems room to float the leaves and crowding them against the sides the edges of the leaves would turn brown, disfiguring them to quite an extent. [In cutting a cask in two we generally cut right across through the middle of the hole in the side, so that when the tub is set level the water stands about an inch from the brim, the hollow at the hole acting as an over-flow; many of the leaves then jam up against the sides of the tub without spreading over it. But if the hole is sawn out so that the edge of the tub is even all round, the water rises to the brim, and the leaves float easily out of the water and over the sides with very little harm to themselves. Never shower them overhead in the heat of the day; this to a large extent will prevent sunscald.—ED.] The stems would frequently measure three feet. When taken out of the tubs in the fall the increase in the number of bulbs by offshoots was very gratifying.

For fish we tried pickerel, perch, horn pout, sun fish and gold fish. The pickerel were too lively and jumped out. The gold fish came from a pond where the water was not clear, and were too wild, and would stir up the soil whenever approached. The sun fish soon became reconciled to their new home and afforded us lots of amusement. After a few weeks they seemed to learn where the food came from and readily took it from our fingers and it was quite interesting to visitors, who would hardly credit our statements, to feed them themselves. We had a miniature fish food experiment station, and became thoroughly convinced that the sun fish were of a discriminating and epicurean nature, for they certainly displayed more fondness for chicken than for any other food, though they would dispose of quite a quantity of angle worms, and took good care of all mosquito larvæ. This year we shall keep only the sun fish.

I would caution A. D. M. to have a small stream of water constantly running into the tubs where the fish are kept, as without it they will live but a short time. F. C. CURTIS.

Maine.

Orchids.

ORCHID NOTES.

The following are in bloom here: *Lælia harpophylla*, a species with small orange colored flowers. It does best in baskets with a small amount of potting material. *Phalænopsis Schilleriana*, the most reliable species where there is not a separate house for their culture. The sphagnum on the surface should always be kept in a growing state; for this reason the pans or baskets should be comparative small. *Cattleya intermedia* and *C. Schroderæ* are useful and easily grown kinds for pot culture. *Dendrobium chrysotoxum*, a beautiful easily grown and reliable species for basket culture. *Epidendrum ciliare* does well on blocks. *Oncidium phymatochilum*, with odd looking, brilliant yellow flowers marked with brown. This plant is ornamental even when not in flower. It does best with basket culture and in an intermediate temperature. *Odontoglossum citrosmum*, a beautiful orchid producing long pendulous racemes of lemon scented, white flowers. It should be grown in suspended baskets, and when in flower removed to where the air is comparatively dry, when it will last longer than it otherwise would. *Dendrobium Wardianum*, the large flowered type; some of these have pseudo-bulbs over three feet in length. *D. nobile*, *D. calceolus* and *D. Findeyanum*, *Chysis lævis*, *Odontoglossum Rossi majus*, and *O. Rossi aspersum*, *Goodyera discolor*, *Epidendrum O'Brieni*, *Cymbidium aloifolium* and *Schomburgkia undulata*.

Among *cypripediums* are in bloom: *C. hirsutissimum*, *Rothschildianum*, *calophyllum*, *callosum*, *Dauthieri*, *Boxallii*, *leucorrhodum*, *cardinale*, *Harrisianum superbum* and *villosum aureum*, the last named a splendid improvement on the type and a fine flower for cutting.

Orange, N. J. WM. FITZWILLIAM.

I have always wanted a thoroughly honest and practical periodical. I saw the first number of GARDENING, sent in my subscription and have every number of it up to the present time. C. S. H.

Higganum, Conn.

WE FIND GARDENING an invaluable help in matters pertaining to the vegetable and flower garden.

Montana. SISTER ROSE VINCENT.

Your GARDENING is the best of all horticultural papers in the United States.

C. T. L.

Williamsport, Pa. March 7, 1896.

GARDENING

WILLIAM FALCONER, Editor.

PUBLISHED THE 1ST AND 15TH OF EACH MONTH
— BY —
THE GARDENING COMPANY,
Monon Building, CHICAGO.

Subscription Price, $2.00 a Year 24 Numbers. Advertising rates on application.

Entered at Chicago postoffice as second-class matter.

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All communications relating to subscriptions, advertisements and other business matters should be addressed to The Gardening Company, Monon Building, Chicago, and all matters pertaining to the editorial department of the paper should be addressed to the Editor of GARDENING, Schenley Park, Pittsburg, Pa.

GARDENING is gotten up for its readers and in their interest, and it behooves you, one and all, to make it interesting. If it does not exactly suit your case, please write and tell us what you want. It is our desire to help you.

ASK ANY QUESTIONS you please about plants, flowers, fruits, vegetables or other practical gardening matters. We will take pleasure in answering them.

SEND US NOTES of your experience in gardening in any line; tell us of your successes that others may be enlightened and encouraged, and of your failures, perhaps we can help you.

SEND US PHOTOGRAPHS OR SKETCHES of your flowers, gardens, greenhouses, fruits, vegetables, or horticultural appliances that we may have them engraved for GARDENING.

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JOHN DUNBAR is assistant superintendent of the parks at Rochester, N. Y. He went there a few years ago from Dosoris, where he had been foreman for us for four years. But "New lairds hae new laws," and the new mayor of the city sent a thunderbolt through the departments when he notified the officials that in order to hold their positions they would have to submit to and pass the civil service examinations. A month after being so notified the park officials underwent the examination, and we are delighted to learn that Mr. Dunbar obtained 98%, and of course holds his position. We look upon his excellent showing as an honor to Dosoris, as well as a great credit to himself.

FROM DOSORIS TO PITTSBURG.

Having been appointed superintendent of Schenley Park, Pittsburg, Pa., I have resigned my position at Dosoris and removed to this city. My object in making this change was more one of professional ambition than financial inducement. At Dosoris we had a lovely and a happy home, a large acquaintance, many friends, and good health, and the island itself is a teeming museum of what is beautiful and useful in horticulture. Since my appointment has been made public hundreds of friends, known and unknown, have written urging me not to disconnect myself from GARDENING, indeed, until now I had no idea of how strong was the attachment of our subscribers to and interest in this journal. But your adhesion is no stronger than mine.

This from Anson D. Morse of Amherst College indicates the general tenor of the letters we have received.

> I hope very earnestly that the acceptance of this position will not separate you from GARDENING. The excellence of that most valuable publication is due to the way you have put yourself and your experience into it. It would be a calamity to thousands of American citizens and to the cause of horticulture if you were to resign its ed torship.

My duties at Schenley Park will be more exacting than they have been at Dosoris and I shall not be able to give as much time to GARDENING as I used to, but we have thoroughly considered this matter and provided for it amply. I shall retain the editorial direction of the paper as before, and all inquiries and other business pertaining to this department should be sent to me direct. My principal relief will come from the Chicago office where provision has been made to attend to all detail matters I may transfer to it, and from additional gardening experts who have signified their willingness to assist me all in their power.

A WORD ABOUT GARDENING.

When GARDENING commenced it started as a beautiful, clean, helpful, impartial, and original journal, and from this it has never deviated or taken one backward step. Aside from diffusing useful horticultural knowledge it has no axe of its own to grind, and it won't grind anybody else's. Its teachings are concise, practical, easily understood, timely, and authoritative, and it endeavors to cover every useful field. But now that I am away from lovely Dosoris what about our illustrations? Never fear on that score. In our drawer are dozens of unpublished photographs taken there, and that beautiful island is always open to us and our camera. We dealt heavily in Dosoris pictures to begin with because we hadn't others to use, but of recent years our readers are coming generously to our aid, and we pray they may continue so to do. GARDENING has never entered into the premium business for two reasons, first, because it would be beneath the dignity of the paper; we will not lower the standard of the paper, and we cannot maintain it if we give a premium, for it costs us every penny we receive to publish the paper. In the second place, because you, our subscribers, are not the class of people who can be influenced by a catch-penny premium, and we appreciate it. During the last five or six weeks we have been deeply touched by the way in which our horticultural and floral contemporaries have treated us, they have vied with each other in kindness to and speaking well of us. We tender them our sincerest thanks.

SCHENLEY PARK, PITTSBURG.

Is a new park consisting of several hundreds of acres of very hilly red clay and rocky land. It has not yet been designed, but a good deal of work has been accomplished in the way of clearing the ground, evening some of the surfaces; fertilizing and road-making, but nothing in the way of permanent planting has been effected. A large assortment of trees, shrubs, and other hardy plants, however, have been gotten together and set out in nursery rows to await the planter's call. The great feature of the park in the meantime is its extraordinary village of conservatories—the finest and most extensive in America; over $140,000 worth have already been built, and work has been commenced by Lord & Burnham on the erection of other extensive ranges. These splendid greenhouses, filled to overflowing, are a sea of blossom and tropical luxuriance, and just now one of the most gorgeous Easter displays of flowers imaginable is on exhibition here and free to everybody. The collections of large palms and tree ferns that were exhibited in Horticultural Hall at the World's Fair was purchased by the city of Pittsburg and planted in the Schenley conservatories, where they are now in luxuriant vigor. The magnificent public library recently built by Andrew Carnegie at a cost of $810,000 and presented by him to the people of Pittsburg stands in Schenley Park.

LOVELY DOSORIS.

It was not without many a pang, and among the gentler members of our family many a tear, that I concluded to resign my position there to accept of this one at Pittsburg. At Dosoris we had lived for 12½ years—one unbroken period of sunshine and happiness. There is no other garden like Dosoris; it is a museum of all that is good and useful and beautiful in horticulture, and as an educational, experimental center its influence has been more potent on gardening in America than has that of any other institution, for it has been broader and more comprehensive, and its workings have been given freely to the people. Look back through the volumes of GARDENING and see the beautiful pictures from Dosoris that have appeared in them; they will give you an idea of what it is. In no other garden on this continent could such a variety of apt illustrations be obtained, and there are more to come. The beauty of this island, its vast collection of plants and their individual perfection and the refining influence it has had throughout the land are all due to the fine taste, generous liberality, keen interest and progressive nature of its proprietor, Mr. Charles A. Dana, and his family. And although I have come away from it, the good work shall be carried on there as before, and there shall be no cessation of interest or curtailment of the munificent manner in which that Eden island has been maintained.

WILLIAM FALCONER.

NAME OF GERANIUM?—One of our readers sends us two blooms of a scarlet geranium and asks us for its name. We don't known what it is. There are hundreds upon hundreds of scarlet flowered varieties of geraniums, in fact, during the last thirty years we may have seen over a thousand kinds, some of them "born to-day and dead tomorrow," and scores of them have blooms so much alike that only a specialist in geraniums, and often not then, can distinguish them. We cannot do it ourselves and we don't know the man who can, no matter how much he may profess to know about it. It takes a good deal more material than one bloom of a geranium as a clue to its identity.

ROSA WICHURAIANA ON AN ARCH AT DOSORIS

LATE GRAPES.—Under date of March 17 Mr. George McWilliam writing to us from Massachusetts says: "Our grapes in the fruit room are keeping very well. I have only lit the fire twice in the room this winter, and that was to dispel the damp, the room itself is frost proof. Madresfield Court last till February 1, Alicante and Muscat of Alexandria till February 24, and there is one bunch of Mrs. Pearson left yet. We have a good many of Lady Downes yet, and I expect this kind will last with us till into May." All of these were greenhouse grown grapes, and ripened before the end of September last year, and they were kept in a dry, frost-proof, cellar room.

HOW TO GROW SWEET PEAS.—Get them into the ground at once, don't delay a moment if the ground is ready. This is what one of the largest and most successful amateur cultivators in the country says. "The main secret in having sweet peas blossom full and fine, is in planting them early. Get the seed into the ground by the first of April or earlier if you can. Last year I planted as early as I possibly could get the seed into the ground, and another lot ten days later side by side with the other, and although the later sowing made as much vine as the earlier one it didn't bear nearly as many flowers. The 'trench' method is all moonshine, just sow your sweet peas as you would ordinary edible garden peas, but sow early."

A POINT IN GROWING NARCISSUS.—Mr. D. Fraser, gardener at Mountain Side Farm, N. J., writes: "The warm weather we had in February brought the narcissus along so fast that the cold weather of this month (March) has cut them back to the ground again. But the narcissi that were planted last fall have not appeared above ground yet." Time and time again GARDENING has called attention to this fact, namely, that in order to have perfect success with the finer narcissi the bulbs should be lifted in summer, then kept dry, and as cool as practicable and planted out again in fall. Narcissi that remain in the ground all summer get a fairly good rest during the hot dry weather, then when the fall rains and cool nights come they begin to grow again, often getting their tops winter-scalded to the ground, on the other hand when the bulbs are lifted in summer and replanted in fall, they will soon start to root, but seldom attempt to throw up sprouts before towards spring, and in this way their leaves escape the scalding. True, there are lots of narcissi remaining permanently in the ground that grow and bloom beautifully without the least trouble, but it is always safer to lift and replant the more tender sorts.

Roses.

THE JAPANESE TRAILING ROSE.

(*Rosa Wichuraiana*).

Many a time before now we have called attention to the beauty and usefulness of this lovely Japanese rose. Its habit is to spread flat upon the ground, forming a thick close mat, covering a wide space. In rich, deep, moistish land the young shoots wills pread out on the ground 20 or more feet in a season and form laterals and thicken up in branches, also root along the joints. The leaves are small, glossy, deep green, very abundantly produced, and although they are quite deciduous they are suggestive of being evergreen. The plant hasn't the slightest tendency to an upright or bushy form, and of its own accord it never climbs. Its flowers are small, white, single, very pretty, and borne in open long panicles all along the vines, and as they blossom in July after all our gay roses are past they are most welcome snowy beauties. As a rule this rose vine is used to sprawl over banks, hang down over the edges of walls, spread over a mound of tree roots or the like, in all of which cases it is apt and beautiful. At Dosoris, however, we conceived another purpose for it, because it wouldn't climb was no reason with us why it wouldn't make a good pillar rose, so we set out a plant against a post at the entrance to the fruit garden and tied up the vines, this answered nicely, and finding that the vines grew far longer than the height of the post, 7 feet, we led them arch-fashion across the walk to an opposite post, tying them to run down. That treatment suited it admirably, and when the tips of the vines reached the ground, they took root there as a black cap raspberry would and formed a crown. Our illustration, engraved from a photograph taken here by Mr. L. Hallock, last July, will give one some idea of how it behaves; unfortunately though it doesn't show the rose when it was at its best, for the photograph was taken when the flowers were on the wane, and the day after a severe storm. Without any exception that arch of roses, when it was in bloom, was the finest sight in the way of a rose arch we ever saw, and it riveted everybody's attention who came within sight of it. And great has been the demand for young plants of it ever since. After the flowers came a heavy crop of red heps, and they hang upon the vines all winter; this arch is now (March 25) loaded with them. As this plant has grown greatly since a year imagine its glory next July!

This little rose vine is perfectly hardy, not a tip or a bud even on the arch is injured in the least. Although insects have left its foliage alone at Dosoris, we have seen it in New Jersey almost denuded of leaves by insect pests. Although comparatively a new plant this rose is cheap enough now and plentiful.

HYBRID TEA ROSE, "BARDOU JOB."

This rose, sent out in 1887, is one of the modern class of garden roses, destined to become popular by its many attractive features. While it has a climbing tendency, it can readily be kept in garden form. The plant makes a strong spreading growth and the leaves are large, of a metallic tinge, particularly in the younger growth. The flower is semi-double, with two rows of petals, of bright glowing crimson color and velvety sheen, quite large in size and blotched with a dark rich shade, though almost white at the base; stamens bright yellow. It is very fragrant and free blooming and will be observed to possess four requisites of a good garden rose, viz: strong growth, freedom of bloom, striking color and fragrance, and is lacking only in a degree of hardiness for a northern climate. Its name is not especially attractive, but "what's in a name?" WM. H. SPOONER.

Jamaica Plain, Mass.

MARECHAL NIEL ROSE FAILING.—In answer to Homer, N. Y., would say: The old rose bush, no matter how far it spreads and much space it covers, should be so exposed to light that not a cane or shoot should be choked or in dark shade. Evidently you have too much old wood in the bush, and that on the under or shaded side is dying. The living bearing wood should be all the way from the bottom to the tip; there should be no blind old vines. How to obtain this—keep the bush thin and cut out the dying blind old canes; should this cause a too severe pruning just now on account of the many young shoots near the ends, cut out the worst of them, enough to let the light in to the balance. Do the heavy cutting back or out of old stems next October or November, and then keep the plant dormant if you can for a month or more. Marechal Niel on its own roots is short lived, but budded on to other vigorous rooting roses it grows well; after a few years though it is apt to canker at the union; this is constitutional. Extra susceptibility to mildew is a sign of enervation or ill health. Be very careful about ventilating and watering; don't give front ventilation or keep the doors open, and don't syringe late in the afternoon. Old planted out rose bushes, as we usually grow Gloire de Dijon, M. Niel, Lamarque, etc., like a good rest in late fall, and the better and longer the rest the better they will start into growth in winter and bloom; insufficient rest is one of the greatest causes of blindness in old roses.

The Fruit Garden.

GREENHOUSE GRAPES.

In January we thoroughly cleaned the graperies, that is the vines, the woodwork and everything else was washed clean; the loose soil on the inside borders was removed and the surface loosened with a fork but not dug or turned over, as this would break the roots which are abundant at the top. The borders were then thoroughly watered, and a coating two inches deep of fresh turfy loam with a mixture of ground bone was applied as a top-dressing; this soil was dry so frost did not penetrate into the border. On cold nights we turned a little heat on to keep the water in the pipes from freezing, that was all, and not to keep the frost out of the house. After February 23 the frost was kept out of the house altogether; by March 1 I increased the temperature to 40° and then to 45° at night. On March 6 we gave the borders a good soaking of water heated to 85°. The temperature now runs from 45° to 50° at night, allowing it to rise 10° more by day or 20° with sun heat, always shutting up early to hold the sunheat and syringing twice daily. March 16 the wood buds are swelling nicely and the most forward are bursting into growth. I am letting the early and late houses start together; in the former we expect to get ripe grapes from the 20th to the 26th of July; in the late house Muscats ripen about a month later. Alicante, Lady Downes, and Mrs. Pearson I like to have ripe by the end of September, as they seem to keep better than if ripened later.

There should be some means of heating the water used in every grapery. The water as it comes through the hose about this time of year is at a temperature of about 40°, which is much too cold to apply to the borders or syringe with; if you wish to encourge growth and preserve the fulness and usefulness of the young roots use water heated to 60° or a little over. GEORGE MCWILLIAM.

Whitinsville, Mass., March 17, '96.

THE APPLE MAGGOT.

(*Trypeta pomonella*).

In my apple orchard the *Trypeta pomonella* ruins every year the fruits of the following varieties: Benoni, Golden Sweet, Porter, Fameuse, Hubbardston Nonesuch, and Northern Spy. What is the life history of the insect? In particular I would like to learn when its egg-laying season begins and ends, whether a smudge in the daytime or a strong spraying two or three times daily continued through this season would be likely to cause it to abandon the trees so treated; whether the meshes of mosquito netting are fine enough to exclude the insect; and lastly, what in general are the best method of combating this worst of all the enemies of the apple. A. D. MORSE.

Western Massachusetts.

In controlling the apple maggot, *Trypeta pomonella*, the principal dependence must be placed upon preventive measures as the insect is not easily destroyed before the fruit is injured. The parent insects fly from early July till they are killed by frosts in the fall, and during this entire time eggs are laid. Individuals have been known to live three weeks or more. Each female is capable of depositing between three and four hundred eggs. The eggs are developed one at a time and are inserted singly in a vertical position beneath the skin of the apple by means of the sharp ovipositor, which makes a characteristic puncture resembling the brownish rusty spots common upon apples. The eggs are deposited upon all parts of the apple, but most abundantly upon the pale shaded portions where the skin is thinner. They hatch in four or five days and the young maggots begin to feed upon the pulp. The earlier channels are small and are largely healed by the rapid growth of the fruit. Later, larger channels are made which do not heal and soon become centers of decay. As the maggots increase in size, they work deeper into the apple, and hence it frequently happens that a fair exterior covers a mass of corruption. Under favorable circumstances the maggots attain their growth in four or five weeks, though cases are known where cold has retarded their development for months. When full grown they usually escape from the apple through characteristic holes and enter the ground to the depth of about an inch and there undergo their transformations. If they do not have a proper place to bury, there is little chance of the round of life being completed. It is said the flies will not emerge if forced to pupate in boxes etc., above ground, but this may not be true of cellars and store houses where apples are ordinarily kept.

Remedies and preventives: No practical method of destroying the flies before they deposit their eggs is known, and the egg and larval stages are so protected by the enveloping fruit that the insect cannot be destroyed independent of it. As the larvæ remain in the fruit till after it falls, much may be done to keep the insect in check by destroying the fallen fruit before they escape. This may be done either by gathering the apples as they fall and feeding them to stock, or by pasturing the orchard with animals that would not injure the trees, as sheep.

The insect shows marked preferences for certain varieties, as the Garden Royal and others. One or two trees of such a variety might be used as a decoy, and if the infested fruit was promptly destroyed, no evil results could follow.

If the soil under the trees was kept in grass or kept compacted so as to offer unfavorable conditions for pupation, or if the soil was stirred to a slight depth in the fall, it is likely that many of the pupæ would perish, and the insects might thus be kept in check. Spraying would not be of any avail in protection from this insect.

J. A. LINTNER.

N. Y. State Entomologist.

BUDDING CHERRY TREES.

Last season I had almost an entire failure in my attempt to bud Early Richmond on Mahaleb stocks. Can you give suggestions which may prevent future failure? The buds used were somewhat mildewed. What is the proper treatment of the same, stocks 2½ to 3 feet high? Would you graft them, or leave them standing and try budding again?

Missouri. E. J. WALKER.

Don't keep over the old stocks of the Mahaleb cherry after having missed them last year, simply cut them down, and next season select one shoot from among the several sprouts that are sure to come up from the root, and at budding time simply bud again, using fresh, sound buds. You cannot expect success unless your buds are good. J. R. TRUMPY.

MILDEW IN A GRAPERY.

A reader writes: "I have a grapery, but for the last three years the vines have mildewed and the grapes rotted badly. I took the vines down last fall and white-washed all the woodwork in the house, and after scraping the vines washed them with Bordeaux mixture. The heat has been on the house now since January, and the vines are growing nicely and showing buds, and so far no mildew is visible. Shall I shade the vines? What else can I do as a preventive against mildew?"

Ans. To prevent mildew is to stop what causes it, and, in your case we cannot tell what that is. Attend most carefully to your ventilating, don't ventilate from the front, maintain a regular and not over-high temperature. No; don't shade the glass at this time of year. As you are a new subscriber it will be to your interest to send to the publisher of GARDENING at the Chicago office for Nos. 22, 24, 27 and 63 of GARDENING, they will

cost ten cents each. In them you will read some of the best articles on growing hot-house grapes that have ever been published and they were written by some of the best practical grape growers in America.

THE ELVIRA GRAPE VINE AS A STOCK.

R. J. R., St. Joseph, Mo., asks: "Is the Elvira grape vine used in Europe as a stock to grow other varieties on?"

Ans The Elvira grape is a seedling of the Taylor, one of the Riparia species, and is such a free growing vine that it should make an excellent stock upon which to graft the European variety, but we cannot say whether it has ever been employed for that purpose or not. It may not have been sufficiently plentiful in our vineyards for exportation, but its parent, the Taylor, was sent Europe for stocks many years ago and found to answer the purpose admirably.

A. S. FULLER.

GROWING BERRY PLANTS.

The first three commandments in successful fruit growing are: Thou shalt not use poor plants. Thou shalt not set out plants carelessly. Thou shalt not use ground until it has been well fertilized and thoroughly prepared. Neglect these three things and all the woes of a careless grower shall be thine. When plants are received keep them in a cool place until ready for setting. Remove all old leaves and cut back long roots and broken branches. Never expose the fine, fibrous roots to sun, wind or heat. In setting, dip roots in water, spread as much as possible and set in fine mellow ground with earth pressed firmly about the roots. The crown of the strawberry should be just even with the surface of the ground, neither too deep nor too shallow. M. A. THAYER.

Sparta, Wis.

INARCHING GRAPE VINES.—H. L., R. I., asks "where can I get two-year-old Barbarossa grape vines? I am thinking of inarching them on to five-year-old rods of Alicante, do you think they will do well?"

Ans. Ellwanger & Barry, Rochester, N. Y., or John Gardiner, Jobstown, N. J. Yes, they ought to do very well, but we should prefer rooting out the Alicantes and replacing them this spring with the Barbarossas, this would be a certainty, and while you would lose a crop this year you should get some nice grapes next summer. Inarching isn't always a success. Barbarossa makes a big bunch and a big berry, but it generally colors poorly and isn't of the finest quality.

The Vegetable Garden.

THE VEGETABLE GARDEN.

The 10th of April may be considered the average time of the first plantings. The land having been plowed in the fall and a heavy dressing of horse manure applied finishes operations till spring. Now the ground is plowed again and harrowed to a fine tilth. Commencing on one side of the field room is left for the late planting of peas that are put in May 1. Leaving this space to one side we now mark rows with a small plow the whole length of the garden and the peas planted the first day (April 10) in order are Juno for late, Yorkshire Hero for medium, Horsford's Market Garden for early, and Premium Gem and Extra Early Market for the first crop. The reason the late peas are planted first is to have them adjacent to the peas to be planted on May 1, in order that more ground may be cleared in one place and planted to a second crop of celery and cabbage. The peas are strewn by hand in the bottom of the furrow and covered lightly by a plow or small drag. The varieties we use need no brushing, hence we use single rows in preference to double rows and brush.

Next rows are formed for the radish, beet, carrot, lettuce, parsnip, onion sets, spinach and turnip. All these are on rows running the length of the land, and are made by throwing three or four furrows together in the form of a bed. These beds are then smoothed down by a board placed under the rear end of a cultivator and held in position by the teeth.

All the above vegetables are now sown in double rows on each one of the beds, either by hand or drill, and covered lightly by steel garden rake and ground firmed by small roller. Plants of lettuce and beets are taken from the hot bed and transplanted in double rows on the beds. This way will give an abundance of beets and lettuce in advance of the crop grown outside from the seed.

I sow the Columbia beet to the exclusion of all others, both in hot bed and open ground. It is of fine quality, early, and good size. I sow the Golden Stone Head lettuce for forcing under glass, the Market Garden strain to transplant from hot bed to open ground, and Salamander to sow outside. The carrots sown are Early Forcing under glass and Half Long Carentan outside. The last named is a coreless carrot of the finest quality and perfect shape.

Only one variety of parsnip is sown viz., Long Hollow Crown, one variety of turnip, White Model, and one of spinach, Victoria, for spring sowing. For the fall sowing we put in Bloomsdale Savoy. We use the common potato and white onion set.

At one sowing we put in the following varieties of radish to give a succession: Non Plus Ultra for first crop, followed by Early French Scarlet or French Breakfast or Long Scarlet Short Top and Yellow Summer. These with the Non Plus Ultra also sown under glass give a long and enjoyable relish. The radish seed is sown by hand broadcast on top of the wide rows, and followed by a top-dressing of wood ashes and raked in with a garden rake.

The double rows for the other seeds are made 8 inches apart to admit a small hoe between them, and these rows from 2½ to 3 feet apart to admit of horse cultivation. A few rows of early potatoes are planted in rows 3 feet asunder, 12 inches apart in row. Some good potato fertilizer is incorporated in bottom of drill before planting; second crop seed is used and cut to one eye. The two varieties we plant are Thorburn and Puritan, both early varieties, we do not grow any late ones.

Cabbage and cauliflower plants are taken from the hot bed and planted in rows 6 feet asunder and plants 2 feet apart in the row.

Next month (May) we will plant melons and cucumbers between these rows. The cabbages can be worked and will be out of the way by the time the vines cover the ground. The varieties used are Jersey Wakefield and Stein's Early Flat Dutch. We make a later planting of Stein's on June 1, and Luxemborg and Hard Heading is planted the first week in July for winter use.

SILAS L. ALBERTSON.

Market Gardener, Long Island.

SMOOTH CARROT SEED.—Carrot seed is somewhat bearded, and when undressed it sticks together a good deal, but not so much as to cause any marked difficulty in sowing it. An English seedsman, however, in preparing his carrot seed for market, mills the beard off of it altogether, without, he claims, impairing its vitality; it can then be sown as easily as parsley seed.

Mushrooms.

BEDS ON THE GROUND.—I tried the beds on a raised floor—that is, I made a platform of hemlock boards with an open air space between it and the earth floor and built the bed on it, but hadn't very good success. Then I removed the platform and built the beds on the ground and used the old floor boards to box up the bed with, covering in the top as well as the sides, the top being a foot or so above the bed. In this way I have had fair success. D. FRASER.

MUSHROOMS IN AN EMBANKMENT PIT.—Answer to W. McKean, Ohio: We cannot tell anything about the desirableness or not of your pit in face of the deep embankment, that is a local matter. Have a water-tight roof, and close, dark structure, no matter whether it be a hole in a bank or a wooden shed; also have plenty room to work and build beds inside, and ready facilities for getting the manure in and out, and convenience for warming the place or keeping it warm. Of course it is a risky business, but brains and application can overcome the risk.

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The Cottage Gardens, Queens, N. Y., carnations, cannas, chrysanthemums.

Reasoner Bros , Oneco, Fla., fruit and ornamental trees and shrubs, tropical and semi-tropical plants and flowers.

Sunset Seed and Plant Co., San Francisco, Cal., seeds, plants, trees and shrubs.

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Elm City Nursery Co., New Haven, Conn., special list trees, shrubs, vines and fruit trees.

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Shady Hill Nursery Co., Boston, Mass., trees, shrubs, evergreens and herbaceous plants.

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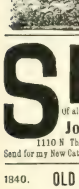

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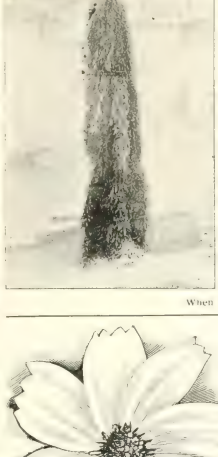

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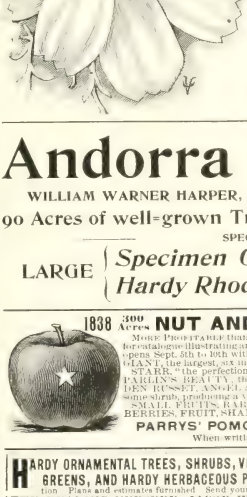

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WM. L. SWAN.

Oyster Bay, L. I., March 7, 1896.

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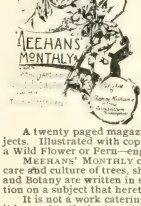

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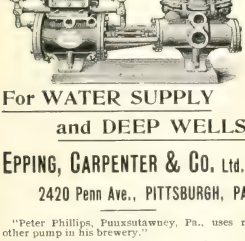

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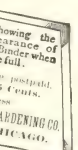

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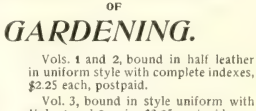

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GARDENING

Vol. IV. $2.00 A YEAR. 24 NUMBERS. CHICAGO, APRIL 15, 1896. SINGLE COPY 10 CENTS. No. 87.

CŒLOGYNE CRISTATA, AS GROWN BY GEO. McWILLIAM.

Orchids.

CŒLOGYNE CRISTATA.

Our illustration is engraved from a photograph of some plants of this orchid in full bloom as grown by Mr. George McWilliam of Whitinsville, Mass.; their profusion is evident to all, and the flowers are white and showy, but not of long duration after being cut. This species is among the easiest of all orchids to grow, and it and *Cypripedium insigne* are the two orchids that amateurs are asked to begin with. To enable us to grow this orchid just as good as the specimens shown in the picture Mr. McWilliam kindly tells us exactly how he treats it.

"The cœlogyne grows equally well in pots or pans, but for convenience in using less drainage, whenever the plants need a pot larger than a 6-inch size, I prefer to use pans, which are simply shallow pots. For potting material I use fern root, chopped into lumpy pieces, mixed with charcoal and broken pots. The fern root is the clumps of big fern stools we find in the woods near here; we dig it, pile it up to dry and kill the weeds in it, then chop it up into lumpy pieces, and gently sieve the fine earth or soil out of it. In potting, while we use this material for the body of the soil, we mix a good deal of fresh sphagnum moss in what we finish off on the top with. Cœlogynes increase a good deal and the masses may be divided, making several plants out of one clump, and potted separately; or larger pans may be used, giving the plants room enough for another one or two years' development. Always repot or break up and pot the plants immediately they have done blooming, and before fresh growth commences, and in this way avoid injuring the roots. I grow them in a span-roofed greenhouse that runs north and south, on the side benches. About the first of March we run a night temperature of 50° in the house, increasing it as the season advances; when the weather gets warm, say in June, we leave a little top and bottom ventilation on the greenhouse both day and night till towards fall, when the weather gets cool; in winter a night temperature of 45° is enough. About the first of March we whitewash the glass to shade it; when the young bulbs show signs of swelling the shading is washed off, and a shading of cheese cloth put on, which we can raise or lower as required and at will. When the bulbs are pretty well swollen the cloth is removed.

"We water cœlogynes freely and syringe them overhead twice every bright day through the summer; to strong plants we give a little weak liquid manure most every day when they are swelling their bulbs. About the first of November we remove part of the plants to the north side of a cool greenhouse and hang a cloth in front of them to protect them from the excitement of sunshine, keeping the tem-

perature as near 40° as possible; after a time bring some of them into a warmer house, and they will soon start to show signs of blooming."

The Greenhouse.

GREENHOUSE FLOWER SEEDS.

By this we mean seeds of such plants as Chinese primroses, cinerarias, and the like, that we raise afresh from seed every year for bloom in the window or greenhouse. Seedsmen render it impossible for us to specify distinct varieties as a study of their catalogues will show. Take Chinese primroses, for instance. Compare the lists of them in half a dozen catalogues and see how bewildering they are; and there is more in this than mere names and vitality of the seeds, the fineness and selectness of the strains. Well, what can we do in the matter? Deal with a seed firm in whom we have perfect confidence and get the best seeds of their kind that it offers. Bear in mind that the finest strains are the most expensive, and mixed seeds are apt to contain some of the poorer varieties.

ACACIA ARMATA, a bushy species easily raised from seed and makes a nice flowering plant third year.

AMARYLLIS, HYBRIDS.—In sowing the seed set them on edge as you would Lima beans, to save them from rotting. They should bloom the third year.

ANEMONE CORONARIA (St. Brigid strain).—The largest flowered. Sow indoors, and prick off; plant out in a partly shaded cold frame in summer, and lift and pot them in fall to bloom indoors. They are also fine for outdoor spring gardening.

ASPARAGUS PLUMOSUS.—Seeds of this are now offered and from seed we can get up nice stocky plants in a year.

BEGONIAS OF ALL KINDS, tuberous rooted, single and double flowered, Vernon in variety as regards foliage and flowers; insignis for December flowers, Rex varieties for all the year, and many others. The packets of seed are very small, and sometimes it is a hard matter to tell whether it is seed or only a little orange dust. All true species of begonias are apt to come true from seed, although the first leaves of the seedlings may be different from those of the mature plants, for instance young seedlings of *coccinea* are full of little white spots like those of *argyrostigma*, but as the plants get older they bear spotless foliage. Even varieties, after the type gets fixed are apt to come true, Vernon for example, but this is not absolute, *Rex* to wit.

CALCEOLARIA.—For this you trust to your seedsman. Get the large flowered spotted. The finest strains are of such compact growth as to need no staking, and they have broad heads of large full-puffed out blossoms. The shrubby or rugosa varieties from seed are quite disappointing either for indoors or outside.

CANTERBURY BELLS, Calycanthema varieties, are worth growing for early spring blooming. Get the pure white, and rose-colored; sow half the packet now to give you big plants before winter sets in and which you can lift and pot and force into bloom at or before Easter. The other half of the packet you can sow in summer for flowers out of doors next season.

CARNATIONS.—While all manner of carnations may be raised from seed Chabaud's Perpetual and Marguerite are worth growing as pot plants for winter flowers as for the summer and autumn flower garden. Why we do not urge the regular winter blooming greenhouse carnations from seed for our regular supply of flowers is because we can get plants of thoroughly tested, good named sorts so cheap, that bothering with seedlings and their uncertain quality would hardly pay.

CELOSIA PLUMOSA.—Get a good strain of the red or yellow feather plume celosias. Sow in early spring for outdoor decoration in summer, and sow again in July to get nice pot plants coming into bloom in October to beautify the greenhouse till New Years.

CHRYSANTHEMUMS of the Chinese and Japanese garden varieties sown now will give you fine blooming plants next fall. And these seedlings are apt to be healthy, luxuriant and floriferous, and every flower different; of course we cannot expect more than a few to be good enough to be worth keeping over another year. *Chrysanthemum coronarium* is an annual species bearing white, lemon, or yellow flowers; sown in late summer and grown in pots it is a good deal used for greenhouse work in early winter.

CINERARIAS.—For a good strain of these you have to depend on your seedsman. The compact habited ones with broad heads of bloom are the most esteemed; the very large flowered varieties are usually of rank growth. There are also double flowered ones. We know of no flower more crowdedly double than a double cineraria, still lots of them are only semi-double. They are not as pretty as the singles.

COSMOS.—If you cannot flower them out of doors, grow a few for the greenhouse or piazza. The mammoth varities Erlinda, white; Rosetta, pink; and Conchita, crimson, have lovely large flowers.

CYCLAMEN GRANDEUM is the favorite because of its luxuriant foliage and bold fine flowers. But we have a tender leaning to Grandiflorum which is not so massive as the other, but it has more numerous blossoms and fewer imperfect ones.

CYPERUS ALTERNIFOLIUS commonly called "umbrella plant" is easily raised from seed, indeed from seedlings we get prettier plants than from division.

FORGET-ME-NOTS (*Myosotis*) especially the bunchy one called Alpestris Victoria make real pretty pot plants in late winter and early spring.

FREESIAS are easily raised from seed, and a few bloom the second year, and all the third season.

GLOXINIA.—Here again you must trust to your seedsman for a good strain. We prefer the upright blooming sorts and get a packet of scarlet selfs, and another of spotted flowered.

GREVILLEA ROBUSTA.—We raise it from seed every year. We plant out a lot of it in May for foliage effect in summer, and save another lot which we grow in pots all summer for house plants in winter. We grow them for their fine fern-like foliage only.

IMPATIENS SULTANI or Zanzibar balsam is one of the best perpetual blooming window plants for winter that we have got and easily raised from seed; and it is good too planted out of doors in summer.

MANDEVILLEA SUAVEOLENS is a white fragrant flowered, greenhouse vine, easily raised from seed. It does well too outside in summer.

MIGNONETTE.—Machet is a very large fragrant variety, and about the best for winter flowers. Some florists have select strains of it to which they give their own name.

NASTURTIUMS.—What is generally catalogued as *Tropæolum Lobbianum* will bloom continuously all winter long. Sow it out of doors in May and in July strike cuttings from these plants and grow them in pots for winter flowers. Or delay sowing till July and grow in pots.

PANSIES.—Here we have the utmost confusion.—We grow Trimardeau, very large; Large-flowered German, large and fragrant, and Cassier's, Bugnot's, and Odier's, three splendid strains doing well in a warm frame or cool greenhouse in winter and early spring. Sow in July for this purpose; and in August for wintering over for spring planting.

SWEET PEAS.—Blanche Ferry, pink and white, and Emily Henderson, white, are the favorites for cut flowers, as a pot plant no doubt Cupid will be grown.

PETUNIAS.—The finest sorts for outdoors are also best for indoors. The doubles don't flower freely till towards spring; the singles can be had in bloom all winter. Better sow for outdoors, and take cuttings from these in July, or sow seeds of the finest striped or frilled varieties in July, and grow them in pots for winter blooming.

CHINESE PRIMROSES.—Here again one has to depend on his seedsman for a good strain. We get scarlet, rose, white, and blue. A good deal of stress is laid on "fern-leaved," but while the fern-leaved varieties are very beautiful, we get as fine flowers, especially in scarlet, from the rounder foliage. Seedsmen have a way of tacking on their names to strains, to-wit "Brown's Superb Fringed White," now the probabilities are that is a pretty good white, were it not so Brown wouldn't fasten his own name to it. Magenta, purple and violet are not favorite colors in primroses.

PRIMULA OBCONICA GRANDIFLORA is the finest large flowered form of this winter-blooming gem. Also get some seeds of *Primula Forbesi* and *P. floribunda*, both are little beauties.

SOLANUM CAPSICASTRUM NANUM, or Wetherell's hybrids, are good strains of what we call Jerusalem cherry plants, so useful for its ornamental bright orange berries from September till January. Sow the seeds at once.

SAINTPAULIA IONANTHA, a tiny rosette-like greenhouse plant with many violet-like flowers. Sow at once.

STOCKS.—For greenhouse decoration in early spring we prefer the East Lothian, and Intermediate sections. Sow in July or early August, grow the plants on in pots, winter them plunged in cold but almost frost proof frames, and bring them indoors as required for blooming. Sown in spring they form a succession to 10-week stocks, but bloom rather sparingly in fall. Wintered in cold frames as above they may also be planted out in spring for April and May blossoms.

STREPTOCARPUS, NEW HYBRIDS.—These are most interesting free-flowering, and very pretty little plants, and amateurs having a greenhouse will welcome them. As they are a little hard to raise from seed, with window care, we don't recommend them for this purpose.

PLANTS IN BLOOM IN THE WHITE HOUSE CONSERVATORIES.

In the conservatory at the White House immense specimens of Indian azaleas present a magnificent appearance, their leaves being hidden by the wealth of bloom. There are also lots of azaleas from one to two feet high, these plants are grown on from year to year, being planted out in summer in a frame with

about twelve inches of leaf mould and sand in the bottom. Chinese primroses were fine. At the last potting of them 6-inch pots are used, about two inches of finely broken pots are used as drainage, and the soil is composed of well-rotted stable manure, loam and sand in about equal parts. The finer varieties of Dutch hyacinths are grown in pots, one bulb to a 5-inch pot. Along the backs of the benches are plants of *Begonia rubra*, 5 feet high, loaded with flowers, among these are arranged Harrisii lilies and in front of these are cinerarias with flowers three inches in diameter. The cinerarias are grown from the seedling to the flowering stage in a sunny house to which air is admitted plentifully whenever the weather will permit it, fire heat is only given to keep frost out. The result is fine stubby well-bloomed plants. They are never allowed to get pot-bound, or very dry; quite a large quantity of manure is used in the soil. Other plants in full flower are imantophyllums with large umbels of showy scarlet flowers. Some plants of the sweet-scented *Daphne odorata* are still in bloom, but this plant seems to have a struggle for existence in the greenhouses, but out of doors it is one of our most satisfactory shrubs, still I doubt its hardiness where the winters are more severe.

Among the many orchids in bloom are large specimens of *Dendrobium nobile* hanging from the roof among baskets of ferns.

Among the best abutilons in bloom Golden Fleece, canary yellow; Splendens, red, and Snowdrift, white, are very satisfactory kinds. For an edging to benches the variegated variety called Eclipse mixed in with the variegated trailing vinca and plants of the grass called *Isolepis gracilis* make a pretty combination. Canna Souv. d'Antoine Crozy has behaved exceeded well as a winter blooming plant, the crowns were started in boxes in the fall, and when large enough, transferred to 6-inch pots in which they are flowering. During the period of growth they were fully exposed to the sun in a warm house until the flowers began to open, when they were taken to a cooler place. The plants are about 2½ feet high; the flowers are very large, scarlet, with an irregular band of yellow around the margins of the petals. *Impatiens Sultani*, where a little heat can be given it, is I think, one of our best winter blooming plants, the best results are had from seedlings, as they make a larger growth than cuttings before coming into flower. It is an equally good thing for the summer border, where it seeds freely; a pinch of seed can be sown the latter part of August or earlier and grown on. Another good thing treated in the same way is *Browallia elata*. G. W. O.

Washington.

CYCAS REVOLUTA WON'T GROW.

T. J., Western Massachusetts, writes: "Two years ago I purchased a *Cycas revoluta* (a large plant for a 5-inch pot). It has failed to make growth for two seasons. I repotted it a year ago, and while the roots looked fresh and thrifty the plant failed to grow last season. Can anything be done except to give time?"

Ans. If the roots are in good condition the top is sure to grow, but it often happens that cycads will only throw up a head of leaves every second year. Don't force it.

FORCING PÆONIES.—I have a fine red pæony now in bloom; it has three open flowers in a 10-inch pot. The root was taken up last fall. How should this plant be treated to secure the best results in forcing next season?

Ans. Keep it growing and in good vigorous condition as long as possible. When properly hardened off it may be planted or plunged out of doors, but not in a hot dry place. While pæonies, if not rushed in very early, may force fairly well a second year, it is much better to force them one year, then plant them out to rest and grow for another year, then lift and force them the succeeding one.

MY BULBS AND OTHER PLANTS.

I am not a gardener, but a busy business man. I have a small old-fashioned lean-to greenhouse 12x24 feet, which I have run the past three years as a pleasant relief from business cares. I do not pretend to much knowledge in the gardener's art, but as I enjoy the limited time I have to devote to the care of my plants I naturally have fair success with a good portion of them.

As to bulbs, I am yet a student in their culture. My observation, however, teaches me that to secure good results we should not bring them into heat too soon or grow them in a high temperature. I pot my bulbs, hyacinths, tulips, narcissus, etc., in moist soil in October and November, cover them with about an inch of sand, and set them in a trench in a cool moist cellar, and as coal ashes are more abundant with me than sand I then cover them with three and four inches of this material. I do not bring them into heat until they have made three to five inches of growth, say from the middle of January to the last of February. When brought up the layer of loose sand enables me to shake off the sticky coal ashes, and thus leave the surface of the soil with clean presentable appearance. Many of my hyacinths when brought up this winter had the flower head developed to the size of a small hen's egg, while the leaves were but little taller. When uncovered I set them in a shady place for a few days, or until the foliage darkens, when they are exposed to the full light of my rather dark greenhouse. The temperature of my house is kept at about 60° by day (without sun and 65° to 75° with sun) and at about 50° by night.

I reserve for home and store decoration a portion only of what I bring into bloom, sending to my neighbors and friends the greater portion of what I raise, as I receive more enjoyment in watching their development than in retaining them after they are in bloom.

I now (March 20) have in perfection a pot of Parrot tulips—the first I have grown—they are grand, rivaling the orchid, I wonder this bulb is not oftener forced.

My results with lilies (*L. Harrisii*) this season differs from what it was in former seasons. In previous years I had large bulbs and grew them in a very moist atmosphere, at about 65° by day without sun. The result was a growth of seven to nine feet in height with eight to thirteen blossoms to a stock. This season with medium sized bulbs, a temperature of 5° lower and with a much less moist atmosphere my plants are up four to five feet in height and carry but four to seven buds. I think the size of bulbs does not wholly account for the inferior results, but that the difference in conditions of growth is partly accountable.

I have two pots of *Cypripedium spectabile* with six and eight growths. From the stronger of these growths I expect to see flower bud appear. Should the weaker stalks be cut out to throw strength into the larger growths?

[Not necessarily unless crowded. But if any of the growths are quite weak they should be cut out.—ED.]

A year ago last fall I planted a bed of pæonies. The prepared ground settled more than I expected, and as a consequence I find the plants will be some three inches below usual depth when the bed is properly graded. Will the plants stand this extra covering of soil?

[If the crowns are strong flowering ones, they will come up all right through three inches deep of covering, but if any are weak we would pry them up a little with a fork. It is well to have them a couple of inches beneath the surface, for as years pass by the crowns will rise up to the surface.—ED.]

Will the cosmos bloom in October whether planted in February, March or May?

[Yes, it makes no difference. The same thing is common in chrysanthemums, it doesn't matter whether one raises them from cuttings put in in January or May, the plants will bloom at the same time next October or November.—ED.]

T. JAMES.

PALM, OXALIS, CYCLAMEN AS HOUSE PLANTS.

The little palm *Cocos Weddeliana* makes a dainty centerpiece for the dining table, the plants growing to a height of 12 to 30 inches or more. Place the pot in a small silver pan and cover the top with moss. This will conserve the moisture. It will look well all winter and need less care than a fern pan.

The Bermuda buttercup oxalis (*O. cernua*) is a strong grower and bears on stiff stems clusters of bright golden yellow fragrant flowers. It is a free bloomer and makes a sunny spot in the room when in flower.

I have a cyclamen in my sitting room at the present time that has been blooming for four months. The plant is 18 or 20 inches in diameter, and is crowned with a mass of more than fifty rosy pink flowers. It requires plenty of water and a sunny window to stand in. Sprinkle the leaves and flowers as well as giving the roots water. When it has done flowering dry the bulbs off very gradually, let it remain in the pot dry during the summer until August, then pot again in very light soil and start it for the coming winter. Potted at that time it should be in flower for Christmas. S. M. T.

THE POINSETTIA AS A WINDOW PLANT.

As requested, I will tell how I treat the poinsettia. A neighbor who had been unsuccessful in his treatment gave me one that looked like a dried stick. I set it in the ground in a 6-inch pot at the northeast corner of the house, where it remained until time to bring in plants in the fall. It showed no signs of life until July. I repotted it when I brought it in and set the pot in a flower table with dirt packed around it. The red leaves (or flowers) opened about the first of November and continued brilliant until April. Last June I cut it back and started slips, which I found easy to do by letting them lay two or three days until the cut end dried off, then set in pots which I placed in a shallow box and packed dirt around the pots. I kept them in my out door nursery where they were shaded by vines. In the fall I repotted them. Out of fourteen slips eleven grew nicely, and what I now (March 20) have are very showy and will probably remain so until sometime in April. I make a free use of bone

meal, mixing it with the soil at the time of repotting. The only reason I can see why I have succeeded where others have failed is in the fact that mine are kept in a moist earth having an under drainage, while others I know of have kept theirs where the outside of the pots were dry, and the roots coming to the dry sides of the pot have been injured. Nothing in the line of flowers gives me more pleasure in winter or require less attention than my poinsettias. It is now four years since the first plant was given me, and it is now branched out like a tree, is five feet high. I keep it in a bay window on west side of the house.

Brooklyn. MRS. S. B. TERRY.

[The fame of Mrs. Terry's poinsettias have come to our notice, at our request she has very kindly given us her method of cultivation. We are assured by a critical florist that Mrs. Terry's poinsettias are as fine as anything seen in a greenhouse; they have good foliage, short stems, big heads of bracts, and they last long in beauty. It is a fact that the floral beauty of poinsettias, calceolarias, and a good many other plants under favorable conditions, will last longer in the window than in the greenhouse.—ED.]

LARGE HIBISCUS BUSHES WANTED.

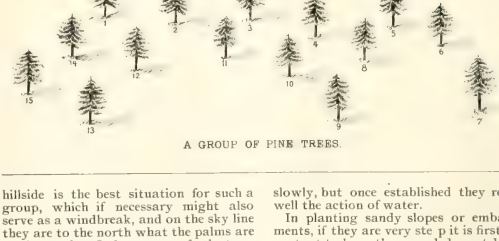
Edgemoor writes: "The variety that I refer to has no relation to hollyhock. The specimens I now have are, I should judge, at least twenty-five years old and are cut back to a height of about five feet. They bear a profusion of large, bell shaped, crimson flowers, and bloom all summer. I got a lot a couple of years ago; but they were too small to be effective and some of them were double and not nearly as showy as those with single flowers. Can you put me in the way of getting what I desire?"

Ans. We presume you refer to *Hibiscus rosa-sinensis,* if so, florists don't keep large plants in stock, it wouldn't pay them to, you should put an advertisement in GARDENING asking for what you want and the size you would like to get. If it is a hibiscus at all, it must belong to the same family as the hollyhock.

Trees and Shrubs.

A GROUP OF PINE TREES.

Mr. Henry Probasco of Cincinnati often came to see us and always selected the finest and rarest conifers we had. Speaking about the different kinds, one day, and that they would lose their lower branches or get partly denuded after a certain time, he quietly turned to me and said "friend Trumpy, when I have enjoyed their beauty for ten or twelve years I consider that they have paid me far more in pleasure than I paid for them in money, and I can afford to plant younger ones in their place." He took the right view of these things. But there are many people who cannot see beauty in trees except in large, mature individuals. Who can stand in front of the Dosoris or Hunnewell conifers, and they are comparatively young plants, without a profound sense of admiration for them? We once had a very beautiful group of pine trees that was greatly admired by visitors, we took specimens of all our kinds and planted them on the side of a hill where they grew thrifty, but on account of encroaching town improvements they had to be removed. A north-facing



A GROUP OF PINE TREES.

hillside is the best situation for such a group, which if necessary might also serve as a windbreak, and on the sky line they are to the north what the palms are to the south. In large grounds the trees may be planted 50 apart, closer in moderate sized grounds, and in small places only the lesser growing sorts should be set out. The group as marked in the accompanying sketch would make a handsome showing.

KEY TO GROUP OF PINES (*Pinus*). 1, Bhotan pine (*P. excelsa*); 2, dense flowered Japan pine (*densiflora*); 3, Scotch (*sylvestris*); 4, Austrian (*Austriaca*); 5, American white pine (*Strobus*); 6, Corsican (*Laricio*); 7, dwarf mountain (*Mughus*); 8, red (*resinosa*); 9; Corean (*Koraiensis*); 10, mountain-top (*monticola*); 11, Pyrenean (*Pyrenaica*); 12, pitch (*rigida*); 13, dwarf white (*Strobus compacta*); 14, Austrian; 15, dwarf mountain. J. R. TRUMPY.

Kissena, L. I.

TREES AND SHRUBS FOR HOLDING RIVER EMBANKMENTS.

The covering of banks of streams and rivers with a dense growth of trees and shrubs, suitable for binding the soil and holding the banks intact, so as to resist the erosion resulting from periodic inundations, is an important question. For holding the banks of streams of a mixed clay nature, the black willow (*Salix nigra*), peach willow (*S. amygdaloides*), and golden willow are excellent and so are the lower growing purple willow (*S. purpureum*), the long-leaved willow (*S. longifolia*) and the basket willow (*S. viminalis*). The last named holds banks in this neighborhood with wonderful tenacity. The shining-leaved willow has been tried, but does not appear to be successful, it is however, fine as a nurse plant in plantations. The two alders (*Alnus incana* and *A. serrulata*) are two standard plants for holding banks. Once they are established they resist the action of ice and floods with remarkable success. False indigo (*Amorpha fruticosa*) spreads rapidly and is very persistent, bladder senna (*Colutea*) is also very serviceable, and so too are the red osier dogwood and the panicled dogwood, the last named forms dense thickets and is excellent for holding the banks of streams. The two wild grape vines (*Vitis riparia* and *V. cordifolia*) are good and the climbing bitter-sweet (*Celastrus scandens*), the virgin's bower (*Clematis Virginiana*) and Virginia creeper, all hold the soil tenaciously once they are established.

Among large trees the Carolina poplar is one of the best for this purpose. The American white elm, the western plane, the white and red maples and yellow and red birch are all good. Among small trees the different native thorns, such as black or pear thorn, scarlet fruited thorn and dotted fruited thorn, are good; they grow slowly, but once established they resist well the action of water.

In planting sandy slopes or embankments, if they are very steep it is first important to have them graded or cut down to the angle of repose, otherwise heavy rains, thunderstorms and spring thaws will constantly wash the soil down to the bottom of the slope and leave the roots of plants bare, so that they will make but little progress. Our native staghorn, smooth and dwarf sumachs, are good on sandy slopes, the last named is a little difficult to establish and perhaps not more than 50% will live, but once it starts it grows rapidly. The sand plum (*Prunus pumila*) is most excellent on sterile sandy slopes, and the beach plum (*P. maritima*) does well. The purple willow, shining-leaved willow, the dwarf willow (*Salix tristis*), long-leaved willow and *S glaucophylla* and others do well on sterile sandy slopes. Bay berry (*Myrica cerifera*) is an admirable shrub for sand banks, in fact it is one of the best. Bladder senna does well and multiplies rapidly. It has taken possession of some sterile banks in this neighborhood unaided. If the sand is of a loamy nature box thorn (*Lycium*) will do well. The Carolina poplar, Mahaleb cherry, European birch, canoe birch and American white birch and the red pine, pitch pine and Scotch pine will all do fairly well on sandy banks.

On banks or slopes of a somewhat rocky nature, the buffalo berry (*Shepherdia Canadensis*) is excellent; the New Jersey tea (*Ceanothus*) does well and the prairie willow (*Salix humilis* and *S. tristis*) are suitable. The snowberry (*Symphoricarpus*) does well on rocky slopes in this neighborhood. A good many of our wild roses do well on rocky land; *R. humilis* is one of the best and *R. Wichuraiana* is also admirable. If there are seams of fairly good soil Hall's honeysuckle will spread nicely and the common woodbine (*Lonicera grata*) and the yellow flowering honeysuckle (*L. flava*) do admirably among rocks. The bush honeysuckle (*Diervilla trifida*) is very suitable: *Euonymus radicans* does well if there are seams of fairly good soil for it to root into, and *Viburnum acerifolium* and *V. pubescens* are useful. The yellow, bristly and clammy locusts are good; once they take posession, if they are cut back they will sucker persistently and take possession. Among evergreens the common juniper is good, the Canadian yew does well in the shade, and the red cedar, pitch pine and red pine will do well on mixed rocky slopes. J. DUNBAR.

Rochester, N. Y.

TREES THAT MAY GROW ON CLAY HILLS.

In my rambles I have seen the following trees and shrubs growing on poor clay hills. Very likely some of them may be noted in botanical books as growing in

CLEMATIS PANICULATA.

low wet ground as many trees grow most plentiful in such places for the simple reason that their seeds will not germinate in dry ground. In preparing the holes for the trees use the pick axe or grub hoe very freely and break up the clay for some distance from where the roots will reach when planted to hold the rain and moisture in the surroundings. To give the trees a good start some rich soil will be required to intermix around the roots, and leaves or any trash in the vicinity should be used as a mulch which can be held in place by a few stones or lumps of clay. It is essential that each tree or plant should be tramped firmly to exclude the air from the roots before the mulching is put on. Nearly all the hardy evergreens can be made to grow in such land, but it would be better to delay that until another year, having the ground dug up to lie loosely over winter.

Black walnut, hickories in variety, butternuts, black and yellow locust, honey locust, American thorn trees, Kentucky coffee trees, native crab, white, red and black oaks, black cherry (*Prunus serotina*), red cherry (*P. Pennsylvanica*), ironwood, hop hornbeam, sugar maple, ash-leaved maple, striped maple and mountain maples, green ash, American mountain ash, and paper and canoe birch. Among lesser growth or shrubs I have found snowberry, calycanthus, Juneberry, witch hazel, barberry, sumach, American and European euonymus, nine-bark spiræa, and any other strong deep rooting shrubs, especially those having tap roots and which root deeply in their natural state. To these I would add lilacs, high bush cranberry, Japan honeysuckle, Virginia creeper and bittersweet.

The red maples and poplars would do well for twenty years, maybe, after that, however, they would fail.

Waukegan, Ill. ROBERT DOUGLAS.

CLEMATIS AND SHRUBS IN MY GARDEN.

I send you a photo of a *Clematis paniculata*, which made a remarkable bloom for its age. It was a 25 cent plant set out in October, 1894, mulched with leaves through the winter, and is now (September, 1895) as you see it, though the photograph does not really give one a fair idea of the extent of the bloom. Those pillars support a porch built over the cellar door, are 12 feet high, and the space between them is 10 feet. A piece of wide meshed wire was put up and folded back to the pillar as one drapes a curtain, but there was not enough room for this ambitious vine, so some simple wires were strung across to the next post to help out. There were a half dozen of these.

Clematis plants set out in the neighborhood at the same time with similar care, which only means mulching and watering in dry times, but none has done so well as this one, and we give the credit to the location on the east side of the house. There are also fine thrifty blooming plants of *C. Henryii* and *Jackmanni* near by; the leaves of the Jackmann's are at the edge of the photo. Our town possesses several large ten-year-old plants of Jackmann's that bloom in masses every season and seem to know nothing of any disease, but young plants frequently turn brown and die down in few days after blooming. In this latitude we sigh to think that houses cannot be sheds, running north and south, so that there can be more of the "east side" to plant against.

Grouped round our clematis are very fine plants of *Wiegelia rosea* and *Spiræa prunifolia fl. pl.*, both of which are difficult to have in good form unless thus protected by the house from our cutting west wind. Spiræas are the feature of this garden. Ten years ago all of the white spiræas in Ellwanger & Barry's catalogue were set out and we wonder that they are not more extensively grown, as they need only ordinary care and soil, are mostly perfectly hardy, and they never become overgrown. Every spring they give us a succession of the daintiest sprays for cutting, to say nothing of the ornamentation of the grounds. Van Hou te's makes a fountain of bloom, being naturally of a superior habit, but when exposed to west winds should be wrapped with straw until established. *Trilobata*, *crataegifolia*, *luxuriosa* and *crenata* are perhaps the best and much alike, but slightly succeed each other and prolong the blooming season. The beautiful double *Keevesi* is more tender and has to be tucked into sheltered spots, and no wonder, for I found it doing well in the Nassau Bahamas. The various forms of *S. callosa*, though not quite so showy, are longer in bloom and later and quite indispensable to any shrub lover. This garden also contains the largest *Hydrangea paniculata grandiflora* in the town. Some years ago a piano box fell upon it, breaking all the wood short off, and thus it was we learned the secret to cut it back. For years we boasted of our Japan snowball, but last winter it was killed to the ground and now refuses to make good young growth, but we feel that we have a permanent thing in the spiræas.

Crown Point, Indiana. F. N. B.

SOME SELECT HARDY SHRUBS.

Several of the hypericums are profuse and beautiful garden shrubs of small size. *H. multiflorum* grows about 2 feet high, and is quite bushy, and is in bloom from July to September. It dies down to the ground every winter like a herbaceous plant, but comes up the following spring stronger than before. All hypericums have yellow blossoms. *H. aureum* and *H. prolificum* are both small shrubs and very free blooming, and *H. Moserianum* is a dwarf almost herbaceous form of recent introduction that has large, showy blossoms all summer long.

Itea virginica is a little gem among native shrubs. It bears a large crop of small racemes of white flowers in summer, and its foliage colors up splendidly in fall. It likes moist ground to grow in.

The California privet (*Ligustrum ovalifolium*) is indispensable either as a hedge plant or a specimen individual; its leaves are almost evergreen, and large plants bear a good crop of panicles of white, scented blossoms.

Among the bush honeysuckles be sure to get *Lonicera fragrantissima*, the fragrant bush honeysuckle, which comes into bloom in earliest spring and before the leaves appear; and the *alba* and the *rubra grandiflora* forms of the Tartarian bush honeysuckles.

The mock oranges or syringas (*Philadelphus*) contain many desirable sorts, but for general purposes the large white-flowered one called *grandiflorus* and the fragrant one, *coronarius*, and its yellow leaved form, are the ones we cannot omit.

The shrubby potentilla (*P. fruticosa*) is admissible into good company because of its continuous and late blooming qualities. It makes a small bushy shrub with yellow blossoms.

The winterberry bushes (*Prinos*) should find a place somewhere in our gardens; they grow wild as large shrubs in our swamps, but they will grow just as well in our gardens in ordinarily good soil. *P. verticillata* has dark red berries that last on the bushes a long time; and *P. levigata* has orange red larger fruit.

Flushing, L. I. J. R. TRUMPY.

ROSES FOR NEW HAMPSHIRE.—J. H. O., Glen Station, N. H., asks: "Can I get roses and plant them in my garden now, and have them bloom this summer, and so, what kinds? Will roses from Indiana do well here near the White Mountains? Can I get varieties that will bloom from the first of July till the last of September?" *Ans.* Yes, you can grow fine roses, so far as your climate is concerned, in fact in the case of H. P. or hardy roses you may be able to grow them better than we can; they will be a little later in coming into bloom in June, but they will last longer with you when they do open, and your cooler nights will give you finer flowers; besides, you will have less trouble from rose bugs than we have. Add to this the solid rest and secure coating of snow they will have all winter, and you have the advantage as regards hardy roses. If you grow a lot of varieties and cut off the old flowers and hips as soon as they form you will probably get a fair sprinkling of second crop flowers in late summer and fall. By planting a lot of China, Bourbon and Tea roses in May and taking good care of them you should get a nice lot of bloom from them after midsummer. But as they may not be hardy with you, you had better cut them back considerably in October, and lift and plant them in boxes to store past over winter in a cool but frost-proof cellar such as you winter your potatoes in. Plant them out again next April or May. Yes, roses from Indiana should grow well enough with you; it doesn't depend so much on from what state you get them as the condition they are in when received.

The Flower Garden.

FLOWER GARDEN QUESTIONS.

A. V. M., Lenox Road, Brooklyn, asks:

1. Have you or any of your correspondents ever seen the "new hybrid" of the Oriental poppy (*Papaver Orientale*)? They are advertised as being salmon, pink and cherry colored. I have bought plants from various responsible nurserymen, and they have all turned out like the parent, and have cost me both money and vexation of spirit. Do such hybrids exist only in catalogues?

Ans. We don't vouch for the "hybrids." There is no doubt, however, that a break in color has been obtained, and that now we have various shades of salmon, pink or red, but to our liking none as beautiful as that of the typical plant. We had them at Dosoris, having got the plants from Woolson & Co., Passaic, N. J.

2. *Iris pumila alba*, much grown as an edging plant in Mexico, and which I have sought for here in vain, where can I get it?

Ans. We don't know. Probably some of our hardy plant florists could get it for you either here or in Europe. If it is so nice in Mexico, we believe it would look well too in Schenley Park, so we also must try to get some of it.

3. *Azalea mollis.* Is it dwarf, how large a plant does it become, and is it hardy on Long Island?

Ans. It is a Chinese deciduous shrub, perfectly hardy on Long Island, and grows from one to four or more feet in height, small plants blooming freely. It is a very beautiful species with whitish and pale, soft yellow or yellow to flame colored flowers of good size. Drive over to Parson's nurseries at Flushing about the first of June and see it in bloom.

4. Tree pæonies. Do the finest ones come from Japan or are they the product of European hybridizers? When is the best time for planting them, and how far apart should they be set?

Ans. In the case of single-flowered ones the most beautiful that we have seen came from Japan. At Dosoris we got them through H. H. Berger & Co., of San Francisco. The fullest double-flowered sorts are of European production. We prefer fall planting, but it matters very little, for we have had excellent success planting them in spring. The great secret in the successful cultivation of tree pæonies is good deeply worked soil, rather moist and never very dry in summer, and an open but sheltered spot.

MY GARDEN IN PENNSYLVANIA.

I have been a reader of GARDENING near two years and must say that I am well pleased with it, as it gives me so much information about hardy shrubs and plants, which are my favorites. [Then, for the little they will cost you should get GARDENING from its first number; if you don't you'll miss a deal of very valuable information and some of the finest illustrations from life that have ever been published. Write to the publisher about it.—ED.] But I like all flowers. Let me advise your readers not to miss having a bed of dwarf cannas like Mme. Crozy, they are fine.

Of hardy roses I have fifteen kinds. Mrs. John Laing, soft pink, and Earl of Dufferin, velvety crimson, are good; the climbing La France isn't much of a climber, but it blooms well; Vick's Caprice flowers freely, Dinsmore is such a free bloomer that it doesn't perfect all of its flowers; and I can hardly wait for my Crimson Rambler to come into bloom, it has been praised so highly.

Of clematises I have *crispa, coccinea, Jackmannii, Henryi*, and *paniculata* and they all are fine. How about Countess of Lovelace? [Large, double-flowered, rich purple; if the disease keeps away, of course you can grow it. But be sure you get *Flammula*, it has flowers like *paniculata*, very fragant and appearing a few weeks before those of the latter.—ED.]

I have great many hardy shrubs, mostly young plants, but I want every other hardy shrub and perennial that has merit. I have a trailing hollyhock—everybody ought to have it, for it bears more flowers than any other plant I know. [Its proper botanical name is *Callirrhoe involucrata*, and English one crimson-flowered poppy-mallow. It belongs to the mallow family of plants and so does the hollyhock, but creeping-hollyhock is a rather far-fetched name. —ED.]

Is *Azalea mollis* hardy here? [With shelter at all times, moisture in the ground in summer, and not more than 5° or 6° below zero in winter it should be hardy.—ED.] I have some rhododendrons; they are such grand shrubs that I would like to plant them in every good place I see around town.

Has the Chinese tamarix any other name? I cannot find it in any catalogue. [By sending to Parsons & Sons, Flushing, N. Y.; Ellwanger & Barry, Rochester, N. Y., and several other of the nurserymen advertising in GARDENING you will get the genuine article under it true name.—ED.] GEORGE A. ARMBRUSTER.

THE GLADIOLUS.

The following questions are by the editor and the answers by Mr. Leonard Joerg, the gladiolus foreman at Floral Park, L. I. Practically Mr. Joerg knows more about gladiolus than any other man we ever met, and during the past twenty years has handled millions upon millions of these bulbs, tending them in every stage of their growth and rest, and selecting and breeding them for new varieties.

1. Is *Gladiolus Gandavensis* degenerating?

Ans. No, at least not so far as I can see.

2. Can you grow as good *Gandavensis* to-day as you did fifteen or twenty years ago?

Ans. Yes, every bit as good.

3. What soil do you prefer for gladioli in general?

Ans. Light sandy loam makes the smoothest bulbs, and the bulbs are equally as large, and the flowers as fine or finer than when grown on heavy soil.

4. How about draining the land?

Ans.. In the case of heavy soil it should have perfect drainage both as regards water in summer and winter. But in our light land here we have no need of artificial drainage, the natural is enough.

5. What fertilizer do you use for gladioli?

Ans. Stable manure. This is very handy for us to get. As we are only a few miles out from New York, and close by the station, with the fields on either side of the track, we get the manure out in carloads, throw it off on the side where wanted and haul it right out on to the land.

6. Do you use this manure on the land the same spring as you plant the bulbs in it, or for the previous year's crop, or how?

Ans. We put it on in the fall broadcast and plow it under. The spring following we plant the bulbs there.

7. How wide apart are the rows?

Ans. Three feet.

8. How deep do you plant the bulbs?

Ans. That depends on the size of the bulbs. Largest size bulbs are planted about five inches deep; medium sized ones two and a half or three inches under the surface; and small ones one and a half to two inches.

9. How close do you plant the bulbs in the row?

Ans. We plant two rows in each drill, setting the bulbs—the large ones—three to four inches apart each way, thus °°°°°°°°°°°°; the lesser ones proportionately closer.

10. About what time in spring do you plant?

Ans. As we plant so many it takes us some weeks to get them out; but about the first of May when the ground is nice and mellow is a good time.

11. When do you take up the bulbs?

Ans. We begin lifting in September, continuing into October. Try and get them out of the ground before the tops die down.

12. How do you winter them?

Ans. The stems are cut off at lifting time and the bulbs gathered and filled into wooden trays or flats, five or six inches deep, and these are stored in a building on racks, with plenty room for

FLOWER BED DESIGN.

ventilation between the boxes and passageways between the racks.

13. At what temperature do you keep this store house in winter?

Ans. 45° to 50°.

14. Do you clean the bulbs in winter?

Ans. Yes, after they are perfectly dry. Don't strip off any skin. They naturally lose their outer skin towards spring when handled.

15. Do the bulbs ever shrivel or dry up before planting time?

Ans. No, they will not shrivel in that temperature.

16. What would you advise doing with bulbs that sprout in the house before it is time to plant them out?

Ans. In the case of Snow White and other kinds that are poor breeders we wouldn't do anything, just let them alone till it is time to plant them out; but in the case of Shakespeare and other good breeders we would break off the shoots.

17. Can you depend on the popular varieties coming good every succeeding summer?

Ans. Yes, if treated properly and the climatic conditions are favorable.

18. Name 25 of the best varieties of gladiolus (not to include any of Childsii) for amateurs to grow.

Ans. Abricote.—Apricot-rose, tinged lilac.

Augusta.—Almost white.

Aurora.—Salmon rose, blotched cherry, streaked violet.

Africaine.—Darkest crimson with white in throat.

Archduchess Marie-Christine.—White tinged with purple and suffused with carmine.

Baroness Burdett-Coutts.—Lilac, rose and purple.

Cameleon.—Lilac, slate, creamy, and white line in center of petals.

Corsaire.—Velvety scarlet tinted on edge with brown.

Carnation.—White ground tinted and blotched with carmine.

Canary Bird.—Our best yellow.

Duchess of Edinburgh.—Purplish rose striped with carmine.

Flamboyant.—Bright scarlet.

Fleur de Lys.—White, stained with violet in the throat.

Grand Rouge.—Bright scarlet.

Hesperide.—White, blotched and flaked with salmon.

Mme. Auber.—Rosy lilac, dappled rose, creamy white blotch.

Marie Berger.—Rosy lilac, blotched and striped with red.

Mlle. Marie Mies.—Rose, flamed with carmine.

Nereide.—Rose and lilac, and bright violet.

Octoroon —Salmon pink.

Pyramide.—Orange rose.

Shakespeare.—White suffused with carmine, and large rosy blotch.

Snow White.—The whitest of all gladioli.

Therese de Vilmorin.—Creamy white with purplish rose stripes in center.

Victor Jacquemmot.—Violet, orange and scarlet, white blotch.

19. What are the ten best varieties of gladiolus Childsii?

Ans. Aurea Superba.—Soft orange scarlet with white blotches and mottling, with white and vermilion in throat.

Ben Hur.—Very large, salmon rose flaked and shaded with smoky purple; throat mottled.

Daisy Leland.—Very large, bright rosy pink.

Dr. Sellew —Rosy crimson, pencilled darker; white throat.

Mrs. La Mance.—White shaded with lilac.

Mrs. Beecher.—Rosy crimson, white throat.

Ruby.—Rich ruby red, with violet and white mottling in throat.

Senator Childs.—Deep glowing red with large white marking in throat.

Splendor.—Soft rose, magenta stains, and purple and white mottlings.

Wm. Falconer.—Very large, pink, throat spotted with pink and white.

THREE OLD FASHIONED GARDEN FLOWERS.

Let me ask you about three little border flowers that used to grow in my parents' garden in Germany and which I haven't seen for more than thirty years. They were very hardy and endured our severest winters. I will give first their names in German.

1. Mannertreu, *Cynoglossum Omphalodes verna.* It is a splendid blue, starry flower like a forget-me-not, but darker, and it has broad foliage. I do not know its English name. [The creeping forget-me-not (*Omphalodes verna*), a little ge n to spread about in a moist spot in the rock garden or border where it won't get covered over and choked by larger plants; it blooms in early spring, and prefers shade from warm sunshine. Thrives admirably in this country providing it is protected from hot sunshine and drouth. Capital to spread about among dwarf ferns.—Ed.]

2. Porzeblan blume, Steinbrech, *Saxifraga umbrosa.* It is a delicate little flower as if moulded of porcelain and not larger than a forget-me-not, but its color is white with red dots. [Commonly called London Pride. We used to grow it at Cambridge, Mass., but it never took very kindly to outdoor cultivation there. In a cold frame it behaved very well. At Dosoris it didn't do well. Under special cultivation we are satisfied that it can be made to grow well. In Europe it is one of the prettiest plants for cushions or making edgings to borders one can grow and it often naturalizes itself in the grass. —Ed.]

3. Tausendschonchen, *Bellis perennis purpurea.* It was a darkest scarlet daisy, low growing like the wild "little crimson tipped" one, but very full rayed and double. [There is a large variety of double daisies in common cultivation in this country, and the very double crimson one you refer to is not uncommon. They are hardy enough so far as our winters are concerned providing they get a light mulching over them to save them from strong light, but our hot summers are very killing to them. They like a cool, moist, slightly shaded spot in summer. —Ed.]

FLOWER BED DESIGN.

This design shows a tulip garden in spring. A marked feature is to make a good display of a few striking and distinct colors, namely crimson, rose, yellow, and white. While more colors may be used if desired it is not well to have too many, lest the effect might appear muddled. Another point to observe is rather than spread the beds broadcast over a large breadth of ground, it is better to keep them together into a design, allowing room enough between the beds for visitors to walk about with comfort and without touching the tulips. Mr. Jensen's design has 2-feet wide spaces between the beds, but we would suggest that these spaces be increased to 4 feet wide. Indeed, if room is abundant, it wouldn't be too much to double the size of the design by drawing it to a scale of 10 feet to the inch instead of 5 feet to the inch. The pathways between the beds may be of sod or gravel, but sod is the preferable one. As soon as the tulips have done blooming they should be lifted and prepared by resting for another season's work, and the beds at once refilled with summer bedding plants.

FLOWER BEDS DESIGN—TULIPS.

1. Crimson color (Belle Alliance).
2,5. Yellow (Canary bird).
3. Rose (Proserpine).
4. White (Pottebakker).
6. Pansies.

SUMMER BEDS.

The same beds emptied of tulips and refilled with summer bedding plants.

1. Geranium S. A. Nutt with a border of coleus Golden Bedder.
2. Ageratum, Dwarf Blue.
3. Geranium Mme. Thibaut edged with geranium Mme. Salleroi.
4. Geranium white-edged bordered with iresine.
5. Geranium Cloth of Gold.
6. Dracæna indivisa edged with dwarf sweet alyssum. JAS. JENSEN.

Humboldt Park, Chicago.

CROCUSES FAILING IN THE GRASS.—If we plant good sound bulbs of crocuses in fall in the grass or most anywhere else they will come up and bloom beautifully the following spring, but the year after that very few of them may appear. This is a common occurrence, and there is no help for it. On the other hand, in cultivated ground if the soil is good and not very dry the crocuses not only come up year after year, but they are apt to increase in strength and quantity as the years pass on. In fact our experience is that crocuses like as good rich ground as any crop.

THAT good paper GARDENING.

N. GREIVELDING.

Wisconsin, February 8, 1896.

GARDENING

WILLIAM FALCONER, Editor.

PUBLISHED THE 1ST AND 15TH OF EACH MONTH
— BY —
THE GARDENING COMPANY,
Monon Building, CHICAGO.

Subscription Price, $2.00 a Year—24 Numbers. Advertising rates on application.

Entered at Chicago postoffice as second-class matter.

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All communications relating to subscriptions, advertisements and other business matters should be addressed to The Gardening Company, Monon Building, Chicago, and all matters pertaining to the editorial department of the paper should be addressed to the Editor of GARDENING, Schenley Park, Pittsburg, Pa.

GARDENING is gotten up for its readers and in their interest, and it behooves you, one and all, to make it interesting. If it does not exactly suit your case, please write and tell us what you want. It is our desire to help you.

ASK ANY QUESTIONS you please about plants, flowers, fruits, vegetables or other practical gardening matters. We will take pleasure in answering them.

SEND US NOTES of your experience in gardening in any line; tell us of your successes that others may be enlightened and encouraged, and of your failures, perhaps we can help you.

SEND US PHOTOGRAPHS OR SKETCHES of you flowers, gardens, greenhouses, fruits, vegetables, or horticultural appliances that we may have them engraved for GARDENING.

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NONSENSICAL MULTIPLICITY OF NAMES.—A reader writes: "We have a single blue, double blue, and a single blush hyacinth in bloom, and all named Charles Dickens. Why is this?" Alas, we cannot answer for this and other nonsensical duplicates of names as given and retained by our Holland friends But we mustn't throw stones in glass houses, for our own old lists of geraniums and some other flowers would prove us guilty of a similar offense. Now-a-days, however, we have a standing nomenclature committee of the Society of American Florists, and some very vigorous kickers, and an independent and fearless press, so that there is little danger of a recurrence of the evil here. But we are powerless in the case of Holland.

Having just subscribed for GARDENING and getting the back numbers from January 1, I very much admire the way in which you answer all questions. They are so plain that amateurs, of which I am one, can fully understand them.

Homer, N. Y. S. D. W. C.

CHINESE PRIMROSE BOUQUET is the name of a new variety recently obtained by Carter & Co., London. Its flowers are said to be single-stemmed, large, white, fringed and set in a broad crumpled leafy calyx that projects far beyond the margin of the corolla.

ROSES IN A HURRY.—Pope & Sons, writing in the *Gardeners' Chronicle*, say: "On December 31, 1895, we sowed the contents of twenty seed pods (of *Rosa multiflora*, dwarf perpetual), and on February 25, 1896—that is, under two months—one of the plants had a good healthy flower bud. The plant is under four inches high. The seed was not sown in strong heat and the plants have been grown along with our flower stocks.

SHOW PELARGONIUMS are to boom again and we are glad of it. They are easily grown, sure to bloom and very showy when in flower. The conditions suitable for cinerarias and calceolarias and Chinese primroses suits them admirably, and they make an excellent succession to calceolarias. As cut flowers they are of very little use because their petals drop so readily. when in bloom we should be very careful to shake all fallen petals off of the foliage every day, else where they fall and rest on the leaves for a day or so they will rot out a hole in them.

AMPELOPSIS VEITCHII ON A PAINTED WALL.—Our good neighbor Mr. W. L. Swan, of Oyster Bay, the other day told us his experience in trying to grow this vine against a painted wall or painted surface. He said it was a very hard matter to get this ampelopsis to cling to painted woodwork or painted brick; it will even cling to a smooth glass surface and refuse to attach itself securely to anything that is painted. But if the wall, board or brick, is painted and sanded at the same time the ampelopsis will cling to it as tenaciously as to an old board.

A POINTED TRUTH.—It sometimes happens that we find trees usually restricted to damp low grounds, growing in high, dry, sterile places, and wonder why it is so. Read what Robert Douglas, that most observing, learned and practical veteran in tree culture says, page 228; that's the secret: "Many trees grow most plentiful in low wet grounds for the simple reason that their seeds will not germinate in dry ground." The "accidental" individuals that occur on dry sterile hills or slopes grew there because the seeds happened to drop into a little hollow that held moisture and litter or leaves like enough till they germinated, after that all was well except that the growth may have been slow.

DAHLIA EDALINE is a perfect little beauty. A few years ago our esteemed friend Alderman Chas. L. Burr of Springfield, Mass., sent us a root or two of this lovely little pink gem, but without a name. We grew it and seeing its value multiplied it under the provisional name of "Pink Beauty." Either planted out in the garden or grown as a pot plant it grew dense but freely and blossomed lavishly, its flowers being very double little pompons of a pleasing pink color and borne on long stems. Writing to us about it the other day Mr. Burr said: "I imported Edaline from Germany. I like it very much especially for cut flowers for house decoration. Its beautiful small pink flowers always come double, and they have such graceful stems, which is something uncommon in dahlias; indeed I regard Edaline as one of the finest of all dahlias, and I have grown hundreds of varieties."

SPRING FLOWERS.—The spring has come, the grass has started to grow and the lilac buds to swell, and crocuses are gay in the grass and among the bushes. Now step outside into your own garden and see what you have got there. You may have raked the manure dressing off of the grass, torn down the old vines and cleared them away, pruned up the trees and bushes, and that work is past with you for a season, and all is neat and trim, and now you hope to rest for a few weeks till it is time to plant out the geraniums to fill up the summer beds. But that isn't enough. This is the time of all seasons of the year when we have got gardening on the brain, and happily it is the time when our gardens may be the most interesting. Among shrubs we can have fragrant bush honeysuckle, mezereon in full and fragrant blossom, with forsythias and different prunuses soon to follow; and snowdrops, crocuses, Siberian squills, early bulbous irises, early daffodils in full bloom, and a host to follow between now and May day, and all hardy, long lived and easy to grow.

MORE NAMES THAN THERE ARE VARIETIES.—One of our readers bought a dozen spiræas, distinct kinds, having selected them from a nurseryman's catalogue, and now after growing and blooming them he finds that instead of having twelve distinct sorts he has got only four, the others being duplicates of this four, and he complains bitterly of this sort of multiplication of names, or way of trapping the unwary. But there are two sides to every question, and before we lift our quill shillelah-wise to smash the head of the "rascally" nurseryman we want to know what he has got to say for himself. We have no favor for the nurseryman who, knowingly, will sell one variety of spiræa or any other plant under two distinct names. During the two years when we were chairman of the nomenclature committee of the Society of American Florists, we gave this question of duplicate names in catalogues a more searching investigation than was ever given to it before, and with a most gratifying result, we found that very few of our nurserymen or florists countenanced it at all, and no respectable one did, and on the whole they were as anxious to have their stock sent out under true names as were their customers to get it rightly named. Take this question of the nomenclature of spiræas for instance, it is muddled at the best. Give us specific information and we shall see what can be done.

FRESH VEGETABLES.—It is the tenth of April and what have we got to eat? True we can go down town to the market and get a variety of stuff all fresh in and ready for the pot, but the best of it is a poor apology for the fresh crisp succulent greens we should have in our own garden. There is no reason why we shouldn't have plenty crisp lettuces from a hotbed, spinach from an all-winter cold frame, rhubarb forced in the stable or cellar, some chives from clumps we lifted a month ago and planted in the lettuce frame, dandelions from a frame over which we put a sash a month ago, young kale sprouts from stumps we saved from December, celery from last fall's storing, parsley from a box in the window or cellar or a sash of it in a frame, besides saved over root crops. Now how many of us have these things? And if we don't have them whose fault is it? Of course these early vegetables require a little forethought and labor, but they are worth the trouble. Or take it in the summer time. In the summer time there is no ex-

case whatever for country folks being without a variety of the very best vegetables, but city people are not so well off. Notwithstanding the fact that our city markets in summer teem with all manner of vegetables and berries, these are not to be compared with the product of our own gardens that are picked and consumed the same day. Then look to your garden.

A VISIT TO CALIFORNIA.

I have just returned from a holiday trip of four weeks to the Pacific coast. I went from here to Texas and then held on my westward way till I reached Los Angeles in Southern California. I found summer weather there, except that the temperature at daylight was about 40°. Yet all our standard bedding plants and greenhouse flowers were in the parks and gardens in full bloom. When I say that I saw heliotrope and poinsettias in full bloom and leather and bougainvillea up at second story windows you can imer all the rest. The finest park trees I saw were 40 feet high specimens of *Araucaria excelsa* and *Ficus elastica*. Going north to San Francisco I found it about equally mild in Golden Gate Park. Horse lawn mowers were cutting the grass, and a hundred different kinds of plants were in bloom, among others, Mediterranean heath, Scotch broom and whins, and the grass thickly sprinkled with daisies. Forty kinds of eucalyptus and thirty sorts of acacia give an Australian type of fohage, many of the trees being in bloom, Little deciduous stock is used, as there is such a wealth of broad leaved evergreens, while the Pacific coast conifers were also very abundant. The *Grevillea robusta* is a common street tree in Los Angeles, and it is very fine. It is called "Australian fern," which makes it a shining example of the confusion caused by some of our common names. But as a hint of the climate I may instance a dell in Golden Gate Park filled with ferns, many of which are tree ferns from New Zealand. Mr. John McLaren, the park superintendent, is a thorough all-round gardener, very practical and sensible in his methods and of first-class executive ability. As more than half the park area was bare sand dunes from which a cloud of sand filled the air whenever the wind was strong, the first work was to hold the sands. He planted thickly tufts of European sand bent grass, watering it freely until established. It now looks like tufts of rushes or fine sedge, but it is spreading freely and the sand is held fast. Then he follows it up with young plants of Monterey cypress and Monterey pine planted very thickly, so that in a few years the sand is invisible except close to the drives, where a carpet is formed with several kinds of ice plant. This was blooming freely when I was there and was very pretty. The whole area of the park is now planted, and every kinds of plant seems to grow with the greatest vigor. They have an unlimited supply of water from wells sunk within the park, their pumping engines are large and they keep a reservoir with a head over of 200 feet always full. Soil and climates combine to give Golden Gate Park an aspect entirely unlike any of our eastern parks. It is "sui generis." In certain sections bedding plants are used extensively, and there is a fine conservatory too, full of tropical plants. Also a water lily pond.

WM McMILLAN.

Buffalo, March 6. Supt. Parks.

CARPETING PLANTS.

Beginner, Dayton, Ohio, writes: 1. "Is there any plant suitable for carpeting the ground in a bed of hardy roses? Is it best to leave the ground bare for cultivation?"

Ans. We would rather have the rose bushes pretty thick in the beds, and these not very wide, and mulch the ground very neatly in summer than carpet the beds with plants; or leave the ground under the roses bare and keep it well cultivated with a prong hoe or rake. Around the edge of the bed, however, a row of sweet alyssum, ageratum, white vinca, or the like, may be grown.

2. "Please give a short list of hardy plants suitable for covering the ground amongst shrubs and tall herbaceous plants."

Ans. It is an easy matter to carpet a shrubbery bed, especially near the outer edge, where the ground isn't very dry; for this purpose we use periwinkle (*Vinca minor*) or "myrtle," as it is called, evergreen ivy, *Hypericum calycinum*, lily of the valley, or Hall's honeysuckle, but preferably the ivy or periwinkle. As regards carpeting the ground between big herbaceous plants as we suppose you mean, larkspur, hollyhocks, sunflowers, tritomas, etc, it cannot very well be done, because the leaves of the tall plants are apt to spread over and kill out any carpeting plant that may be used for such a purpose. Along the front of the beds or borders, however, creeping speedwell, golden alyssum, white arabis, evergreen candytuft, moss pink, and the like, may be used. Have a few reserve annuals, as asters or dwarf nasturtiums, to fill up any spaces made vacant by the cutting over of tall plants during summer.

The Fruit Garden.

HAMBURGH GRAPES AND GREENHOUSES IN THE SOUTH.

In the issue of March 15 of GARDENING under head of "Greenhouses in the South," in regard to raising Black Hamburgh and Muscat of Alexandria grapes in the south, I desire to add to my reply of January 15 as follows:

As the heading of the article is supposed to cover the whole south it may be well to discriminate somewhat as to the possibility of growing these grapes in its various sections. At Earleton, Alachua county, Florida, on the shore of Lake Santa Fe, my friend, Baron H. von Lutichau, has made a remarkable success in growing Black Hamburgh Golden Chasselas and many other varieties of foreign grapes. For a number of years past he has shipped these in quantities to northern markets. The vines are grown in open ground without any protection whatever. The influence of the large body of water bordering the vineyard has no doubt much to do with his success. There is therefore no reason why as good results could not be expected from similarly situated localities in Florida. At our place near Augusta we annually grow some exceedingly good bunches of Black Hamburgh in open vineyard by using the proper precautions in spraying the vines and fruit, and dusting the latter with flowers of sulphur when half-grown, then bag the bunches. We have had bunches of the Black Zante to weigh upwards of two pounds and every berry perfect when bagged in time. There is one drawback however, to the cultivation of Black Hamburgh in open ground; that is the vines are short lived if allowed to overbear, and therefore only a few bunches should be left on each vine. As regards Golden Chasselas I know instances of vines planted in 1868 by the late Governor Hammond of South Carolina at his residence in Beach Island, near Augusta, which, although being left unpruned and uncultivated for a number of years did, after receiving a thorough working, yield perfect fruit for several years afterward.

So much for the possibility of growing a few varieties of exotic grapes at the south, but as a rule they can only be considered as varieties for amateur cultivation. Referring again to the same article it is evident that the writer is not familiar with the modern plan of constructing greenhouses. Several of our houses were built more than 15 years ago and after having been kept regularly painted we do not find these to be a "shaky wreck." Far from that, they bid fair to last 15 years longer. It all depends upon the quality of the material used, the proper method of construction and the care. We are so well satisfied with fixed roof plant houses that we have lately changed the roofs of three large houses from portable sash roofs to fixed roofs. The sash roof proved to be expensive and needing frequent repairs; whereas the fixed-roof buildings with good cypress sash-bars are less expensive to keep in repair and in the end much more satisfactory.

As I review the progress made in the United States in horticulture during the past 40 years we must admit that much of this is due to the excellent horticultural publications which have been the means of late years in disseminating information upon every possible subject connected with this pursuit. Had it not been for the periodical welcome visits of these publications we would still hold to the opinions which prevailed half a century ago. Where would southern floriculture be to-day had it not been for scientific discoveries and their application in methods of cultivation? Our southern fruit growers would soon find their pursuit to end in failure were they still to follow the old methods of cultivation as well as preparing their crop for market as prevailed formerly.

Such things as spraying fruits and plants, using refrigerating and ventilated cars, and other methods which enable the fruit grower of to-day to carry his fruit perfect to distant markets, are being daily improved upon. It would be reasonable to expect the fruit grower and the floriculturist to stop at the present facilities offered in his pursuit because he may think that we have attained the greatest possible perfection in these. A few years hence our present methods will be considered as "back numbers," and every progressive horticulturists will surely not refuse to avail himself of the information which is so freely and practically given him through the horticultural press.

P. J. BERCKMANS.

PEARS FOR WINTER USE.

For the family orchard I know nothing more desirable than the development of varieties of pears that will extend the season of their use when kept under the ordinary conditions of winter storage from January to May. I have tried a number of the more promising late winter varieties; the results thus far are in the main disappointing. Josephine de Malines is always astringent. Easter Beurre ripens unevenly; the sunny half will be fully ripe while the other half is still hard; Winter Nelis is difficult to keep beyond early January, besides with me the fruit is becoming almost as subject to the attacks of fungi as the Flemish Beauty. Spraying helps, but is not a complete remedy. Barry is of fine quality and

a long keeper, but on the other hand is the poorest grower in my list of more than forty varieties, and never fails to set from two to three times the right amount of fruit. The newest winter pears, Fred Baudry and Olivier des Serres have not yet borne; each with me is a poor grower. I plan to try the Easter Beurre in the warmest and most sheltered place on my grounds as a dwarf, and with the highest culture, hoping to secure in these ways a more complete and even maturing of the fruit.

Amherst, Mass. A. D. MORSE.

SCALE INSECTS.

I herewith send to you some pieces of branches taken from an apple tree, as you will see they are covered with insects. What are they and how can I get rid of them? They have spoiled a good many trees here. H. M.

Milwaukee.

The apple-tree twigs are almost covered with scales of two species of scale insects, viz., the apple-tree bark-louse, *Mytilaspis pomorum* (Bouche), and the white scale, *Chionaspis furfurus* (Fitch); the first named is the brown oyster-shell form, which, from its peculiar shape, was formerly known as "the oyster-shell bark-louse."

Each of these species is quite destructive to the trees that it infests, and the abundant presence of either one may be fatal to the tree. When a tree has been permitted to become badly infested it is better to cut it down at once and burn it rather than to attempt to save it.

In moderate infestations the insects may be killed by thorough spraying with kerosene emulsion at the time when the young have hatched from the eggs and are traveling over the branches prior to their attaching themselves to the bark and sheltering themselves beneath an excreted scale. This would be approximately from the middle to the end of May for the latitude of New York and Michigan. The precise time of hatching may be determined by occasional examination with a magnifying glass during this period. Or, if the spraying is not delayed later than the first of June, it would then probably reach and destroy all the young, even those which have commenced to secrete the scale. The soap emulsion made according to the usual formula may be diluted with ten parts of water. A strong solution of tobacco would probably kill nearly all of the active insects. Two sprayings would be preferable to one. J. A. LINTNER.

Office of N. Y. State Entomologist.

BUSH ALPINE STRAWBERRIES.

A. D. M., asks: "Where can I find plants or seeds of the bush Alpine strawberry?"

Ans. Ellwanger & Barry, Rochester, N. Y., offer both the red and white Bush Alpines in their strawberry catalogue for fall of 1893. A. S. FULLER.

The Vegetable Garden.

THE VEGETABLE GARDEN.

The first week in May we finish planting the plot left for late peas by putting in Yorkshire Hero and Juno and now prepare the ground designed for melons and cucumbers by marking deep furrows, applying well-rotted manure strewn in drill, cover with plow, smooth down to make a level seed bed, and set your drill to sow the cucumber and melon seed very thick in the rows. Leave the plants at last thinning to stand cucumbers 8 inches, melons 12 inches and watermelons 2 feet apart. Keep the plants well dusted with tobacco dust when young to keep off insects and do not thin all at once; do this gradually as the plants crowd each other. In cucumbers nothing is better than a good strain of White Spine for first crop and Long Green for second crop. We like the Emerald Gem muskmelon first rate, also plant Golden netted Gem and Hackensack. Taken one year with another we consider the Phinney watermelon up head for northern latitudes. The White-seeded, Ice Cream and Florida Favorite also are grown and both are good.

We endeavor to keep a succession of sweet corn till frost and plant in hills 3 feet by 4 feet, plant the following varieties all in one day, depending on White Cob Cory for first pulling, then comes Minnesota, Crosby, Pee and Kay, Moore's Concord, Large Excelsior, Roslyn Hybrid and Late Mammoth. Every 10 days we make another planting of the Late Mammoth to the 4th of July. This gives a desirable succession till frost.

For the first picking of bush beans plant the Ne Plus Ultra and for second picking Refugee. In wax beans the Improved Black Wax is one of the best. Avoid over-crowding the bean plant. Plant in drills 2 feet apart and thin to 8 inches in the row.

The 20th of May is time enough to think of planting Lima beans, tomatoes and plants of sub-tropical origin on Long Island. Holes 4x4 are close enough for Lima beans. Plant 12 or 15 seeds in a hill and when nicely up thin to three. Challenger Lima is our favorite.

Tomato plants having been grown and transplanted once under glass are now taken up, placed in hills 4 feet by 6 feet, shading them during heat of the day and at night in case of frost. For early the Red Apple or Early Michigan followed by Dwarf Champion; Beauty and Favorite are the best of the older varieties.

Pepper plants from the hotbed can now be set 18 inches apart in rows 2 feet asunder, Large Bell is preferred.

The first day of June is soon enough for putting out egg plants. Have your plants large and stocky by transplanting once under glass, then set them out 3 feet by 4 and keep them shaded for a few days. They will well repay an extra allowance of well-rotted manure Keep all potato beetles picked off the egg plants twice every day. The spineless strain of the New York Improved is the only kind to plant as a stand-by.

Squashes may also be planted at this time. Plant the bush and summer crookneck in hills 4 feet apart for early. The Boston marrow, Hubbard and Pike's Peak or Sibley for fall and winter use in hills six feet apart.

Celery we start in cool hotbed in April, transplant in May and plant it out in July. For it give the land an extra coat of well-rotted manure and plant in bottom of shallow drills 8 inches apart, the drills being 4 feet asunder. Earth up as the plants advance in size. We esteem the Crawford Half Dwarf and Perfection Heartwell the best of all.

The first cultivation of the above vegetables is done by the use of a small plow with a cabbage mould. Later cultivation consists of weeding and hoeing followed by a one-horse cultivator.

SILAS L. ALBERTSON,
Long Island. Market Gardener.

Miscellaneous.

THE PLEASURE OF GROWING PLANTS FROM SEED.

Among the hosts of your contributors who crowd the pages of your valuable journal with their experiences as cultivators, many seem content with planting for a single season only, and are satisfied with the flowers and fruits which they can push ahead and enjoy in one of our short northern summers. This is, it is true, a great satisfaction, but it is only one of the satisfactions which await on the enthusiastic cultivator whose garden is his idol, and whose delight is in watching nature's countless processes of germination and development.

For thirty years I have found pleasure and profit in observing the results of seed planting and in growing many varieties of bulbs and shrubs and trees from seed. Though this requires much time and patience it is found to pay well, and such experiments invariably prove interesting and occasionally very successful.

In this busy, rustling age, we hear men say, "Who wants to plant for posterity? Life is too short to plant a nut and wait for its fruit. It is enough for me to plant what will give me this year's flowers or this summer's results, and I don't care to plant a crop which I may not live to reap."

And yet, those hurrying souls lose much of the pleasure which their garden can afford if they do not experiment a little as they go along; if they do not, while gathering the transient crop of the summer, cast an eye ahead also to future possibilities. They lose nothing by doing so, they waste no time. Their interest is stimulated, their knowledge is increased, their taste is cultivated, and surely to stand at the cradle of rare plant or tree, to watch its young growth and to shape its gradual development, becomes of itself an education and a permanent charm.

In the last score or two of years I have greatly enjoyed experiments with seed planting as a recreation in a busy life, and I have felt abundantly paid, both in its practice and in its results.

Lilies, hyacinths, amaryllis, snowdrops, are all easily raised from seed and only time and patience are needed to insure success. *Lilium candidum* blooms in the fourth year from seed and with a little forcing can be made to bloom in three years. Hyacinths bloom in three years, but being a hybrid for centuries the sporting goes on indefinitely, and we can never expect that the seed product will resemble the parent in color or character, as the variations from the type are endless. Hence experiments with hyacinths are all the more interesting from this fact and new colors appear with each new generation.

With tulips I have had no success, but snowdrops (*galanthus*) bloom freely from seed in three years, maintaining the parent type and improving in size of bloom.

The amaryllis (*Belladonna major*) produces its like and with flowers improved in size and in tint. The different varieties of iris are indefinitely multiplied from seed, even without special care. The yuccas are equally successful and the Y. *filamentosa*, if well tended, will sometimes bloom in the second year from seed.

Of shrubs I have had most success with the deutzias, syringa (*Philadelphus*), exochorda and a few of the other spiræas. The mespilus and sterculia and our native

palmetto are easily raised from seed, but must have glass protection; while most of the conifers are of the simplest production, provided the seed be fresh and well selected. The California varieties of thuja, cypress and retinospora are grown by the thousand from seed ripened in their native climate, and sometimes from seed produced on Long Island, while the California buckeye, grevillea, pepper tree, eucalyptus, persimmon, and even the Pacific live oak prove readily responsive, and in their infantile stage are plants of great novelty and interest, and well repay study.

The improved varieties of our own native nut trees—as is well known—are all the result of careful selection and seed sowing, the only precaution needed being to select the finest nuts, which are perfectly fresh and have *never been allowed to dry*. This latter precaution is indispensable in all nut planting, as, indeed, I may add, with all hardwood trees and shrubs. The walnut family is an interesting one for experiments of this kind. I have raised very successfully the butternut, black walnut, Madeira nut (*Juglans regia*), pecan (which proves hardy on Long Island if protected for its first four winters); while hickories, nearly all the northern and western varieties, can be as easily grown from seed as nasturtiums or beans. Filberts, English and French, are not difficult to grow from the nut, but will scarcely bear fruit before the sixth year. If we could cross the English filbert with our own native corylus (hazel nut) it might give a very valuable product. Perhaps Mr. Fuller has already tried the experiment. I have never been able to do so. Chestnuts are of easiest culture and new hybrids are now offered by nurserymen. The chinquapin germinates readily if the nuts are sound and is well worth cultivating.

The leguminous shrubs and trees are quite sure to succeed, though the seed must be carefully chosen. I have raised many fine laburnums from French seed gathered in Marie Antoinette's garden at Versailles, which proved superior to the Scotch variety both in foliage and flower. The virgilia also, and wistaria and red bud (Cercis) both native and Japanese, are all easily grown from seed and well repay the few years of waiting.

With magnolias I have never failed. The *M. glauca* blooms in three years and the *grandiflora* proves hardy on Long Island with careful protection during the first few years of its infancy, though it has not as yet shown a flower.

[It has lived out of doors at Dosoris for several years, blooming beautifully every summer. At first we used to tie in the branches and set headless and bottomless barrels over the tree, bracing them between long hickory poles, then we wrapped it in sacking or matting, and twice we left it entirely unprotected, and it has lived over winter, and bloomed in summer, no matter how treated. But it becomes almost leafless in spring.—Ed.]

There is no special science in this department of gardening, but there certainly is much satisfaction and much also to be learned as well as enjoyed. Amateurs are oftentimes as successful as professionals in developing new varieties of plant growth, and nature—the bounteous mother that she is—stands ever ready to assist the patient cultivator and to reward his honest labor. J. W. B.

Long Island, March, 1896.

GARDENING is a gem.
Conn. MRS. CLEMENT S. HUBBARD.

FERTILIZERS AND THEIR APPLICATION.

[*Condensed from a paper read by Robt. Sampson, Cromwell, Conn., before the Society of American Florists at Atlantic City.*]

THE BEST SOIL.—What can be considered the best soil for such crops as roses, carnations, chrysanthemums, etc? My choice would be two inches from the top of an old rich pasture, where the soil is inclined to be a heavy loam and the land is low enough to catch the deposit from the continual washings, yet not low enough to be sour and wet; this cut in the spring as early as the land is dry and laid up with good cow manure of the previous season in thin layers in the proportion of four parts soil to one of manure; if the soil is naturally very rich less manure will answer, and if very poor a larger quantity should be used.

HORSE MANURE I would never mix with the soil for roses under any consideration; it may when thoroughly decomposed be used as a top dressing, but its action in the soil is often pernicious. I have seen it fill the beds full of white fungus and toadstools.

SHEEP MANURE I consider one of the very best fertilizers we have, used either in liquid form or mixed with the soil at the time of planting; but I have never dared to mix it in the compost heap, for too much of it in one place is certain death to all vegetable life. I know of one large grower who declares he will never use another shovelful of it as long as the world stands; upon enquiring how much he mixed with his soil I found he used somewhere about one part sheep manure and three parts soil. I know of nothing in the way of animal manure that can equal it as a crop producer, but we must use it cautiously; 200 pounds to a 100-foot house of roses or carnations will not be too much if it is pulverized and evenly mixed with the soil, or the same amount can be used as a top dressing. Having secured good soil and good manure and planted therein good plants the most natural thing in the world is that they should grow, providing of course that all other conditions are favorable.

THE ESSENTIAL FOOD FOR PLANTS.—When we undertake to furnish food to a plant or a number of plants it is reasonable to suppose we will understand the particular requirements of the plants and the nature of the food we propose to supply. Searching for information on this subject I addressed several inquiries to Prof. Halsted. My first question was "To properly develop such plants as roses, violets, carnations and chrysanthemum, what chemical properties should the soil possess?" Here is the answer: "The soil for growing roses, carnations, violets, etc., should contain among the leading ingredients of plant food, potash, phosphoric acid and nitrogen, these three being the elements that are most usually absent, one or all, in a soil that is unfit for such plants. In addition to these three substances there needs to be lime and a small amount of iron and other substances; but as these with rare exceptions are present in sufficient quantity nothing further need be said of them. Clay and sand make up the bulk of ordinary soil in connection with the decaying vegetable matter, and this latter furnishes nitrogen." What elements of plant food are found in unleached wood ashes, in nitrate of soda, in sulphate of ammonia, and in kainit? I received this reply: "The leading food element in wood ashes is potash, but as it is the residue after the burning of a vegetable substance, it contains all of the mineral substances which the plant takes from the soil, and the list would be a long one, including lime, magnesia, iron and not to forget phosphoric acid in combination with lime and so on. Nitrate of soda contains nitrogen in combination with sodium, and is a very satisfactory source of nitrogen; and applied in small quantities the plant quickly responds to the nitrogen that is thus received. Sulphate of ammonia also contains nitrogen, and one of the elements of ammonia which is united with sulphuric acid. Kainit is a mixture of very many substances, as potash, common salt, salts of magnesia, and other substances."

All these elements or substances may be in the soil in sufficient quantity at the time we fill our benches and plant our roses, etc., and as a result the plants make beautiful growth, but after a time we fancy they are not doing so well, they haven't the same vigor, the same beautiful glossy foliage, the flowers are not quite as large perhaps, and we think something is wrong; and so it is, the supply of food is giving out, the soil is being exhausted probably ten times as fast as it would be out of doors; the growth is much more rapid, and while it only rains once a week, or once a month in the garden or field, it rains every day in the greenhouse, washing down through the benches each time in solution all the different kinds of plant food.

As a general thing when rose foliage has a pale, yellowish, sickly look, it is a sign the plants lack potash, in which case I should use wood ashes at the rate of one barrel to a 100-foot long house of the regulation width. About a month ago we found a house of Perles planted for the summer trade that had just this look, but after a liberal dose of wood ashes they are to-day as thrifty and well colored as could be desired.

NITROGEN is usually present in sufficient quantity I think where an abundance of manure is incorporated with the soil, but this is not always the case; and I have come to the conclusion that when plants in a greenhouse bench present a stunted appearance without any apparent cause, the roots being in a healthy state, and all other conditions being favorable, that the soil does not possess nitrogen in sufficient quantity, or else what it does contain is locked up and is not available for the use of the plant. I had an illustration of this last fall in a house of Mermet and Bridesmaid roses. The house was not completed until sometime in August, hence was planted rather late, but the plants were large and vigorous, and the soil as far as we could tell fairly good; the house itself was all that could be desired, yet somehow the plants did not grow, but immediately after planting took on that hard look which none of us like to see. We waited as patiently as possible until a little ahead of Christmas, and then concluded something must be done, or we would never cut enough to pay for heating the house. We accordingly commenced a systematic feeding from a couple of barrels brought into the house, using sulphate of ammonia and fresh cow manure one week, and alternating with nitrate of soda and sheep manure. The animal manure was used in very small quantities, and the salts at the rate of a 3-inch potful to a barrel of water. They were watered with one of these liquids once a week for about two months. The change was almost instantaneous, and was most remarkable; they at once began throwing up strong shoots from the root, and while they never grew as large as some of the plants in the other houses, yet they produced large crops of flowers, the individual blooms were large, the

foliage was perfect; the plants in fact became so strong and vigorous, that we selected all our cuttings of those varieties from these same plants, in preference to any others on the place. This should be a sufficient reply to those who claim, that while nitrate of soda and similar fertilizers may stimulate a plant for a time, they simply do so at the expense of the plant's constitution, being almost certain to produce a soft, unhealthy, unnatural growth.

I have used nitrate of soda for almost all kinds of greenhouse plants, and am not aware that it ever injured any one of them.

PHOSPHORIC ACID.—I can not tell you what symptoms are manifested by the plant when there is a deficiency of this ingredient in the soil, but as I have never heard or read of there being too much of it for the plant's welfare, we are safe in furnishing a liberal supply. There is no question of its being a great factor in furnishing food to plants. Bone meal is one of the best sources of phosphoric acid, yielding as it does from 20 to 25 per cent. There is danger from bone meal in the greenhouse, however, if it has come in contact with acids.

LIME is usually present in the soil in sufficient quantity, but an addition of it to heavy or clayey soils is often very beneficial; it acts as an enricher, as a sweetener, as a pulverizer, and as an insecticide, hence its value to the florist.

LIQUID MANURE.—Perhaps the most satisfactory and economical method of supplying food to such plants as roses and carnations during the winter and spring months is by means of liquid manure. I have a decided objection to laying manure on the benches as a top dressing in the late fall, or during winter, believing it to do more harm than good; it prevents evaporation and keeps the sun from the roots at the time when they are benefited the most by its direct action. Twice during the season, the first time in August, and the second in March, I mulch all our tea roses; the first saves a great deal of watering and is entirely gone by November, and the March mulching gives the roots new material to run in and also prevents severe drying out. Between these dates and in fact after the latter date I consider liquid manure cheaper, cleaner in the house and more effective. For ordinary purposes that made from animal manure is the safest and best. Four pecks of cow or horse manure, two pecks of sheep manure, or one of hen droppings, is sufficient to make 100 gallons of liquid. I have known people who never thought liquid manure was strong enough, unless its odor was powerful enough to drive most people away from the house where it was being used, but this is against all reason and common sense, far better to use it weak and often; plants, like animals, should be fed regularly if they need feeding at all, not gorged to-day and starved for a month. Their food also should be changed from time to time, so that what is not supplied in one form may be found in another.

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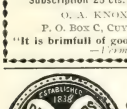

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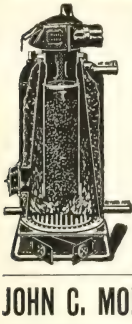

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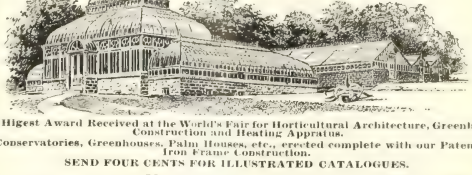

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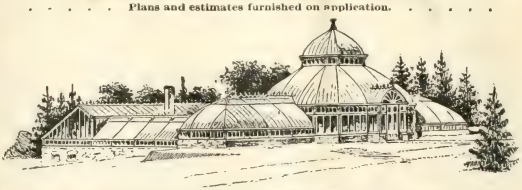

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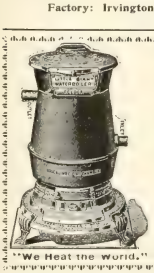

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GARDENING

Vol. IV. $2.00 A YEAR. 24 NUMBERS. CHICAGO, MAY 1, 1896. SINGLE COPY 10 CENTS. No. 88.

THUNBERG'S BARBERRY (BERBERIS THUNBERGII) IN MR. EGAN'S GARDEN AT EGANDALE

Trees and Shrubs.

BERBERIS THUNBERGII.

Until the year 1883 the only barberry common in our gardens was the European species (*B. vulgaris*) and its purple form. A few of the holly-leaved *B. aquifolium* were grown under the name of *Mahonia*. This is still rare in this section, as the winter is rather severe on its evergreen leaves, making it present a sorry appearance until it gets its spring suit on. Of late years Thunberg's barberry has been introduced, and its popularity at once became established. But few old specimens are to be seen, so that many of your western readers have yet to see a matured plant. The one illustrated was planted in 1891 at the base of a large rock, and is now about three feet high and six or more broad. It seems to have an affection for the rock, in appreciation of the moisture and coolness obtained under its base, for it hugs it in a very appreciative manner. In GARDENING I have heretofore spoken favorably of its many virtues—its perfect hardiness, pendent, bell-shaped flowers in spring and its brilliant coral berries in fall and winter—in fact at this writing, April 22, last fall's berries can still be seen among the fresh green leaves. Its fall coloring is grand, and this feature alone is enough to recommend it. It is perhaps somewhat conducive to profanity, when in spring it becomes necessary for tidiness' sake to clean out the gathered leaves that were blown in by the winds, as its spines are quite sharp, but as a pair of buckskin gloves is ample protection this irreligious tendency is easily overcome. The bushy tree to the left is the *Salix vitellina* var. *Britzensis*.

Egandale. W. C. EGAN.

[In the accompanying illustration Mr. Egan gives us a glance at a corner of his lawn. You see the lawn is unbroken. At its outer edge we find the tall native trees, also some other tall broad young trees which the gardener himself planted there, and fronting them in an easy graceful way are individuals and groups to please the eye and relieve the monotony of the solid bank of branches and foliage. And to the fore of some of these shrubbery groups hardy perennials also find a place in quantity and variety, and they prolong the beauty of the garden and form an attractive and pleasing picture.

HOW OUR TREES AND SHRUBS HAVE WINTERED.

The past winter here since New Year's has been quite severe. The lowest temperature recorded was 14 degrees below zero on the 7th of January. Fortunately there was a good covering of snow pretty evenly distributed over the ground. The cold was continuous. We don't remember ever before to have noticed Thunberg's spiræa so much winter killed as it has been the past winter, at least three-fourths of the flower buds are dead. We are sorry for this, as it is one of our pet shrubs. *Kerria Japonica* has been killed back a little more than usual. *Fontanesia Fortunei* and *Fontanesia phillyreoides* are killed back a little on the tips; the former was mulched heavily, and the latter was boxed in. *Berberis dulcis*, and the var. *nana* have come through the winter in good form, they had inverted boxes over them all winter. *B. stenophylla*, *B. Japonica* and *B. Neubertii* all look well. They all were protected; *B. Hakodate*, *B. Cretica* and *B. Asiatica* have come through alike to the tips without any special protection.

Forsythia viridissima has been killed back severely, only a small portion of the

flowering wood is left. It is always unsatisfactory here, suffering more or less every winter, but Fortune's forsythia is alive to the tips.

Erica carnea is slightly damaged and *E. vagans* is badly scorched *Jasminum nudiflorum* and *J. officinalis* under protection, if not entirely killed, are killed back to the ground line. *Parrotia Persica* under protection appears to be all right. *Calycanthus occidentalis* is killed down to the ground. *Syringa oblata* has come through in good form. *Chionanthus retusus* is sound to the tips.

Buddleia curviflora under a good mulching has been killed back a little. The chaste shrub (*Vitex Agnus castus*) and *V. incisa* appear to be sound at the base. They are always killed back with us here. *Forestiera acuminata* has wintered splendidly, it never appears to suffer from the cold here.

Rhus succedanea and *R. vernicikra* have wintered well. The tips of *Euonymus radicans* are killed back a little. *E. angustifolius*, *E. Sieboldiana*, *E. verrucosus*, and *E. Bungeana* under heavy mulching are all in good form. *Photinia arbutifolia* and *P. serrulata* with inverted boxes over them, have suffered considerably. *Osmanthus ilicifolius* with a box over it has come through all right.

Elaeagnus longipes has wintered well, and *Daphne Blagayana*, *Daphne Cneorum* and *D. alpina* are all in good condition. European broom (*Cytisus Scoparius*) under cover is now in good condition. *C. purpureus* has come through all right without any protection and *C. elongatus*, *C. hirsutus*, and *C. nigricans*, with a little protection, are all right. The European gorse (*Ulex Europeus*) has suffered badly under heavy protection, but it seems to have been covered too much, as a number of plants we had in a cold frame with much less protection than those in the open ground have servived the winter well.

Coronilla emurus has killed back a little on the tips and *Indigofera Dosua* to the ground. The last named is always killed back to the ground with us.

Coniferous evergreens such as *Abies Nordmanniana*, *A. Cilicica*, *A. Orientalis* and *A. Smithiana* seem to have wintered well. Some of them are browned a little on the northwest sides but they will soon grow out of it. The Cephalonian fir (*A. Cephalonica*) always gets killed back a little in a young state and until it attains some age and size. Two or three specimens of the Lawson's cypress in this neighborhood still hold their own. The Japanese retinosporas such as *R. squarrosa*, *R. obtusa*, and *aurea filifera* with boarded wind breaks and some evergreen branches over them have wintered well.

Mr. B. Perkins of East avenue, an enthusiastic lover of flowers, and a student of GARDENING, has a fine collection of *Catawbiense* hybrid rhododendrons that have come through the winter splendidly, in fact in better condition than any others we have seen in Rochester. We believe his success lay with giving them sensible protection without coddling them. They are well budded and will make a fine display of bloom. JOHN DUNBAR.

Rochester, N. Y., April 22, 1896.

TREES AND SHRUBS IN FLOWER IN APRIL.

Cold weather continued here without intermission until the 10th inst. The indications were for a late spring, but an unusually warm spell set in about the 12th inst., with a temperature in the shade on some days of 84°. A number of things rushed into bloom quite suddenly.

Our first visitor was the Japanese witchhazel. It was in full bloom on the 9th inst. and is now past. *Erica carnea* has been in good bloom for the past eight or nine days. *Corylopsis spicata* opened its pretty yellow flowers on the 10th and is now quite pretty. Leather leaf (*Cassandra calyculata*) has been showing its small white flowers since a few days. Leatherwood (*Dirca*) and spice bush, with their small inconspicuous yellow blossoms, are now in full bloom, and the Cornelian cherry (*Cornus mascula*) has been very showy for the past four or five days. Although the individual flowers of this cherry are small, good flowering specimens are very conspicuous in bloom. The aromatic sumach has been showing its small yellow flowering catkins since a few days. *Lonicera fragrantissima* came into bloom on the 20th; what a delicate fragrance the flowers have! Some of the different varieties of Japan quince have been in bloom for two or three days. As a rule we don't have Japan quince in flower before the first week in May.

The shad tree (*Amelanchier*) has come into bloom. We usually don't look for its blossoms before the 5th or 6th of May. Fortune's forsythia and *Forsythia viridissima* are coming into bloom. The former is much the better one of the two. Thunberg's spiræa has been showing a few flowers for the past two or three days. The native hazels are about past blooming and so is the sweet gale, with its brownish catkin. Some of the early flowering willows are past. The goat willow (*Salix Caprea*) is perhaps the most showy of any of them in bloom; it is now entirely past. In some warm and sheltered situations *Magnolia stellata* came into bloom on the 20th, and what a lovely thing it is! *Magnolia conspicua* in some positions has been in good bloom for the past two days. *M. Soulangeana* is just opening.

The silver maple was in bloom about the 10th and the red maple followed it in three or four days. They appeared to flower more close closely together this year than we ever saw them do before. A few Norway maples are now in bloom and the sugar maple will be in bloom in a day or two.

Prunus tomentosa has been very showy for the past two days and a few stray flowers that have escaped the winter's cold are open on *Berberis Japonica* (*Mahonia Japonica*). *Daphne Mezereum* is now pretty well past.

JOHN DUNBAR.

Rochester, N. Y., April 22, 1896.

DAMAGE TO SHADE TREES BY CATERPILLARS

The following timely and sensible remarks under date of April 9, 1896, were prepared by Mr. Wm. McMillan of Rochester as an appeal to the people.

"The damage done each season by caterpillars to the foliage of the trees in the streets of the city and in private grounds is increasing from year to year at an alarming rate. Unless it can be checked by some more effective measures than have yet been attempted, nearly all our trees are doomed to speedy destruction. A simultaneous attack against the common enemy is necessary all along the line. To secure this concert of action our citizens must be aroused to see the danger that confronts them. The egg-clusters and cocoons are visible in great numbers on nearly all our trees in every section of the city. The cleaning of occasional lots, or even blocks, here and there, while intervening parts remain foul, will only invite the worms to the fresh pastures when food in the home lots gets scarce. Therefore, everyone who realizes the danger must stir up his neighbors to join with him in exterminating the pests.

"The species of caterpillar which in recent years has done the greatest damage, and which is increasing most rapidly, is the larva of the "Tussock" moth. Its eggs are usually laid in a mass on the outside of the empty cocoons. They adhere closely to the cocoon, so that the removal and destruction of the nest is usually all that is necessary. To accomplish this the simplest method is to get a ladder of suitable size, and, getting within arm-reach of the cocoons, brush them off with the stub of a worn out whisk broom, or sink brush. As the latter is made of fine steel wire or splints, it is the best tool, but a broken table knife or any small scraper of handy shape will do nearly as well. When a tree has thus been cleaned the spoil should be gathered up and burned or crushed by stamping it under foot on the pavement.

"Every tree-owner in the city should examine his trees at once and take immediate measures to remove both eggs and cocoons wherever found. They are most abundant on the lindens, horse-chestnuts and elms, because the foliage of these trees is the favorite food of the caterpillar. The crevices in the rough bark of these trees afford many places where the cocoons can be securely fastened and be well screened and sheltered. But they are distributed more or less on other trees, and also on any rough posts, walls or fences. The under side of fence rails is a common hiding place.

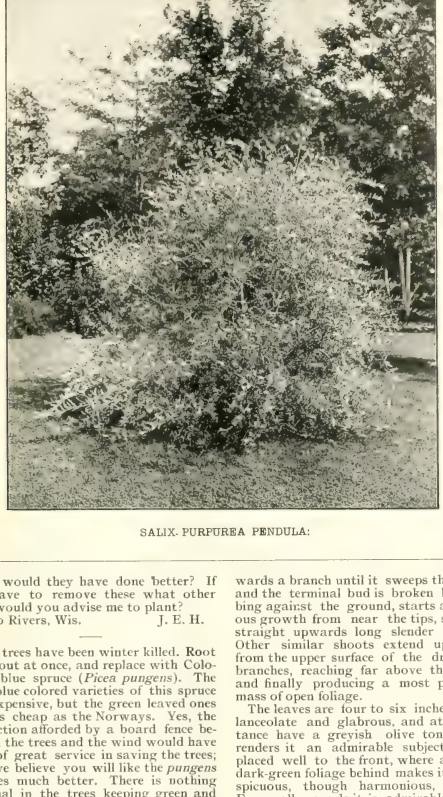
"After the trees come into leaf the eggs are not so easily seen, and there is not the same freedom of movement in brushing them off. If nothing be done until the worms get to work on the foliage their ravages cannot be checked except by spraying with poisonous liquids, such as London purple and Paris green, which require a special apparatus and expert skill in application. In favorable seasons from the cocoons spun in June, eggs are produced in July, and from these a second brood of worms is hatched in August. But as far north as Buffalo this seldom happens. The rapidity with which they multiply if only one brood hatch may be judged from the fact that as many as 600 eggs have been counted in one patch

"Besides the Tussock moth larvæ there are several other kinds of caterpillars that feed on the foliage of our trees. The most common of these is called the tent caterpillar. It weaves its tent in such large masses that they are sure to be seen in good time to destroy the whole brood in a bunch while in the caterpillar stage, but it often happens that the position is on the highest or outermost branches of the trees, and very difficult to reach.

"Cotton bands or rings of tar around the stems of the trees are of little use, and are very unsightly. Only such worms as may be hatched on adjacent buildings and fences have any occasion to climb the trees. Pick off the cocoons that may be found so easily in such exposed places and there will be no need for cotton or tar."

THE NORWAY SPRUCE WAS WINTER KILLED.

Last spring we planted some Norway spruce on the west side of our place; they grew all summer and looked fine all fall and winter, and till a week or two ago, but now they all look red and rusty, and the needles are falling off. Can anything be done to save the trees? Why has this happened? They have had no protection whatever from the sweep of the wind in winter. Had a board fence been put up on the west side to protect them from the



SALIX PURPUREA PENDULA.

wind, would they have done better? If we have to remove these what other kind would you advise me to plant?

Two Rivers, Wis. J. E. H.

The trees have been winter killed. Root them out at once, and replace with Colorado blue spruce (*Picea pungens*). The very blue colored varieties of this spruce are expensive, but the green leaved ones are as cheap as the Norways. Yes, the protection afforded by a board fence between the trees and the wind would have been of great service in saving the trees; still we believe you will like the *pungens* spruces much better. There is nothing unusual in the trees keeping green and healthy looking all winter and getting red and leafless in April. If you cut off a branch of a fir or pine tree in November and lay it on the ground or wood pile over winter it will look most as green and fresh as if it were growing on the tree till March or April, then it would get brown and soon become leafless.

SALIX PURPUREA PENDULA.

This European shrub, known in England as the purple osier, in its natural form makes a broad spreading decumbent bush often nearly ten feet high. During recent years it has been grafted on other stock and sent out as the new American weeping willow. It was a happy thought that caused the experiment, as it is undoubtedly the most graceful of the smaller weepers. The term weeping does not convey fully its characteristics, as the word implies a drooping nature only, while this plant often, after sending downwards a branch until it sweeps the earth and the terminal bud is broken by rubbing against the ground, starts a vigorous growth from near the tips, sending straight upwards long slender shoots. Other similar shoots extend upwards from the upper surface of the drooping branches, reaching far above the graft and finally producing a most pleasing mass of open foliage.

The leaves are four to six inches long, lanceolate and glabrous, and at a distance have a greyish olive tone, that renders it an admirable subject to be placed well to the front, where a foil of dark-green foliage behind makes it a conspicuous, though harmonious, object. For small grounds it is admirable, for it can be kept to almost any size. It is perfectly hardy, seems to thrive in any situation, and transplants readily. The specimen illustrated has been planted in its present position four years

W. C. EGAN.

The Flower Garden.

HARDY PLANTS IN BLOOM APRIL 20.

I have never before seen such a sudden change in the garden in so short a time. Ten days ago in the lower part of our garden, which is shaded by large trees, the ground was frozen hard. To-day in every corner of it the buds are opening and the leaves developing and almost everywhere there is something in bloom.

Large patches of the white rock-cress (*Arabis albida*) are in full bloom. It is one of the finest early flowers we have and blooms best when grown in an open sunny position. In the borders are also masses of grape hyacinths (*Muscari botryoides*). It is a bulbous plant, loving to grow in a deep, sandy soil, and it is quite hardy, needing no protection whatever. It grows about nine inches high. The individual flowers are blue and although small are produced on slender stems in nice clusters. There is a white variety of this plant in bloom which is even prettier than the type. [A very pretty and very common little spring blooming bulb and one of the easiest of all to naturalize in grassy or wild places; indeed in some old farm yards we know it has run wild with the profusion and strength of a weed.—ED.]

The large bright yellow flowers of the spring adonis (*Adonis vernalis*) are among our most showy, hardy spring blossoms and the bright weather we are having shows them off to fine advantage. This plant should not be disturbed often, as it thrives better if left alone. It grows well here in a sunny border in deep, light soil.

A very handsome Himalayan primrose now in bloom is *P. denticulata*. It is quite hardy here if covered over with leaves in the winter. When grown in single plants it is not very showy, but a little bed of it makes a pleasing effect. It grows about nine inches high and has bright lilac flowers in round clusters on erect stems. Its variety, *Cashmeriana*, is in bloom also. Both grow best in a slightly shaded position and where water will not lodge around them in winter. [Both are easily raised from seed and bloom full the following year. To have them in perfection winter them in a cold frame planted out as one would pansies or polyanthuses.—ED.]

Puschkinia scilloides is a desirable small bulbous plant and has flower spikes six inches long or more with delicate blue blossoms. It is hardy if planted in a sunny position and in deep, light soil. A near relative of *Puschkinia* is glory of the snow (*Chionodoxa Lucilliæ*), another charming early blooming bulbous plant. There are several clear blue star-shaped flowers on a short stem. The variety *gigantea* with larger flowers, is also in bloom. They are exceedingly hardy and succeed in any common garden soil. Under the shade of trees there are still large patches of Siberian squills in bloom. They are easy to grow and multiply quickly.

Our native liver-worts (*Hepatica triloba* and *acutiloba*) are in bloom; so is the European species (*Hepatica angulosa*) which has much larger and showier flowers than our native ones. All are at home under the shade of a large hemlock.

The two dogtooth violets we have in bloom now are *Erythronium albidum* and *E. grandiflorum*. In the rock garden *Saxifraga ligulata* is in bloom, the flowers are pleasing, but the foliage is not good at this time. Blood root (*Sanguinaria Canadensis*) makes a good garden plant and at this time its flowers are produced plentifully. The twin leaf (*Jeffersonia diphylla*) is very nice while it is flowering, but its blossoms do not last long. *Geum triflorum* is a low growing native plant that blossoms early in spring. Its flowers are not showy now, but later the plant on account of its white plumes of fruit is more showy. In a rich, moist soil and a shady position there is a large bed of bellwort (*Uvularia grandiflora*) flowering profusely. It grows about eighteen inches high and has drooping yellow flowers. *Pachysandra procumbens* is a low, evergreen

native plant which has numerous spikes of small, whitish flowers at this time. It grows well here under trees. In the rock garden *Euphorbia myrsinites*, bearing greenish flowers, hangs gracefully over the stones.

The winter heliotrope (*Petasites vulgaris*) is not a showy plant in any way, neither are its flowers showy; its flowers, produced in early spring before the leaves appear, are in low spikes near the ground and are of a dullish, purplish color. Their only good quality is their pleasing fragrance. Bees are very fond of this plant. It makes a good wild garden plant, but is not suitable for a garden border, as it spreads too quickly.

The following hardy narcissus are in bloom: Emperor bicolor, Incomparabilis, Golden Spur, Princeps, Corbularis and Scoticus.

Bulbocodium vernum is past its best, so are the crocuses, but here and there in shady places there are a few patches of them still in bloom.

Pansies and daisies that are in the beds are blooming well now.

R. CAMERON.

Cambridge, Mass.

GARDEN NOTES.

As I look over my garden this spring I observe a few matters that seem interesting to me. Perhaps they may also interest your readers. I had abandoned certain plants to the rigor of winter with no protection, with a view of testing their hardiness. The results follow:

The rose Crimson Rambler has survived perfectly. Leaves are now starting. The plant was a young one, bought and set out by me in the spring of 1895. [It is quite hardy both at Dosoris and at Pittsburg.—ED.]

The little annual rose Midget is alive. This is, I suppose, called an annual only because it will blossom a few months from seed-sowing. My plants were grown from seed sown in a hotbed in the spring of 1895. They blossomed when not more than four inches tall. The flowers are not much, but it is highly interesting to see such tiny plants producing veritable roses and only a few months from seed.

Acanthus latifolius lived through the winter of '95, protected, but last winter, left unprotected, it has died.

Gaillardia James Kelway is a perennial and a fine flower. Plants of it left unprotected have survived.

Two years ago I tried unsuccessfully to obtain seeds or plants of *Centaurea macrocephala*. Last spring Thorburn catalogued it and I procured seeds and grew plants. These have survived with no protection and I expect to have flowers this season. [It is a perfectly hardy perennial.—ED.]

I sowed the annual wallflower last spring, but failed to get blossoms. The plants were growing in an out of the way place and were not rooted out. To my surprise I think they are still alive. [Our "annual" wallflower bloomed all summer.—ED.]

I placed a barrel filled with leaves around an *Erythrina cista-galli*. The top of the plant is dead, but I believe the root has life. [No doubt of it.—ED.]

I found last spring that the roots of *Nicotiana affinis* lived over winter and produced as good plants as those grown from seed, and I thought these blossomed earlier than the latter. I am quite interested to learn whether they will come up a third year. It is too early as yet to know. I had supposed *N. affinis* to be a true annual. [*Nicotiana affinis* is a perennial species, but as it grows so freely from seed and seedlings bloom the first year, and the species isn't quite hardy we treat it as an annual. Probably the old crowns did not live over winter, but pieces of the fleshy roots did and from adventitious eyes produced on these roots the young plants grew that came up in your garden. It has behaved in this way with us for many years. The giant species called *colossea* behaves in much the same way, except that it is less hardy than is *affinis*.—ED.]

Friends have told me that it was unnecessary to protect pansies. Those in my unprotected experimental patch have died. [On a raised bed with a few evergreen branches laid over them to break the strong light in winter, hold the snow when it came and break the frosty winds pansies usually winter as well with us out of doors as in the frames, but they don't come into bloom so early.—ED.]

Tulips and hyacinths, unprotected, seem just as happy as those that had protection. [A doctrine we have always preached.—ED.]

Hyacinthus candicans survived the winter of 1895 with no protection. It is too early to know what fate has befallen them the second winter.

Crown imperials lived unprotected through the winter of 1895. But of the same four plants left again unprotected one has now a lusty six-inch growth, while the other three have not as yet appeared.

Crimson clover sown in late summer among the currant bushes survived. By the way, do you know what a beautiful bouquet a lot of these blossoms make?

Japanese wineberry has lived with no protection.

Now for the last experiment I shall report. [No, please keep on.—ED.] A friend has a magnificent collection of geraniums imported by him from England. He grows them in a greenhouse, and, following what he terms English usage, he calls them pelargoniums. I secured cuttings last summer and started them in boxes of sand covered with muslin. Nearly every cutting grew and I potted the little plants and stored them in a cold pit. Most of these are alive, and I see no reason to doubt having a bed of uncommonly fine geraniums next summer.

J. B. G.

Flushing, L. I., N. Y., April 18, 1896.

[The name geranium used as an English word in the same way as we employ verbena and dahlia is generally applied to zonal or bedding geraniums, rose geranium, and the fancy or show geraniums popularly called Lady Washington geraniums, and they do this in England just as much as they do here. *Pelargonium* is the true botanical generic name of all of them, and some folks wishing to be more technical than others will persist in using the true botanical name rather than the commonly accepted English one, just as they insist in saying *Aloysia* in place of lemon verbena, *Astilbe* in place of spiræa, and *Cytisus* in place of genista. They are quite right in doing this, at the same time we claim we, too, are right in using the other names when we use them as English names and not botanical ones. —ED.]

MY GARDEN THIS SPRING.

Until the hot spell set in on the 13th of April, the season was at least three weeks behind in Bergen Point, N. J. Crocuses and scillas did not bloom until the middle of April, while in other years I have had them in bloom March 21. The hot spell seems to have now set the season at least a week ahead as regards hyacinths, tulips, etc. *Begonia Evansiana*, which was well mulched, has not yet made its appearance (April 24). I am anxious to see if this is hardy in my locality. If so I can start a boom for it. Crimson Rambler had its ends well nipped, although well protected, and has had to be cut down nearly to the ground, so that a bush which cost $1.50 last year is now no larger than one for which I paid 25 cents. Indeed, Marie Guillot, Perle des Jardins, Mrs. Pierpont Morgan, and some other nominally tender roses, came through, well protected, as well as the Rambler. The past winter seemed altogether to be an anomalous one. Hybrid pentstemons, under a mulch of leaves, came out bright and green, not having lost a leaf or end of a stem, while other plants, presumably much hardier, have died. *Rosa Wichuraiana* had its tips well frozen, although not requiring much cutting back. If this rose never bloomed it would be worth growing as a climber on account of the glossy foliage. *Gentiana acaulis*, over which I had struggled for years, and seen it gradually go into a decline, expired in the early spring, having lived out the winter in moribund condition. I never hope to see a flower with such an intense shade of Prussian blue, and I mourn the (I can not say untimely) decease of this plant more than I can tell. In gratitude for many years of coddling it rewarded me last year for the first time with *one* beautiful bloom. Great hopes fill me on seeing the active growth of *Schizophragma hydrangeoides*. Having sulked for three years, and grown about three feet in all that time, I think this year it has made up its mind to get down to serious work. We shall see later on.

New York. L. C. L. JORDAN.

EGANDALE, APRIL 21, 1896.

Mother earth paid tribute to the Irish Saint by sending her season's first born to Egandale on March 17. The bearer of glad tidings—the opening of the season of 1896—was the snowdrop (*Galanthus nivalis*). Five days prior the thermometer registered 5° above zero—where the snowdrops get a crowbar with which to open up the frozen earth for its entrance into light is an unsolved mystery. On April 1 the crocus in the open borders were in bloom, and so they were in the grass a few days later. Evidently they are growing weaker each year, showing a dislike to our clay soil. On April 11 extremely warm weather set in and has continued up to the present time, 21st. The unusual heat hastened the opening of the bloom of tulips and hyacinths, causing them to expand before the stems reached their normal height. On the 17th *Forsythia suspensa* (golden bells) was in full bloom and its companion, *F. viridissima*, nearly so. These shrubs are about the first to bloom in the open air here and they are perfectly hardy and a handsome floral picture when well grown and their bright golden flowers are open. Here and there in little groups along the edge of the ravine the radiant blues of the *Chionodoxa* (glory of the snow) and the scilla (squills) kept company with colonies of *Hepatica triloba*, the liver leaf.

Dicentra eximia, the plumy bleeding heart of the Allegheny mountains, used as an edging, had thrown up its finely cut foliage some six inches high and hung graceful pendants of rose-colored, heart-shaped flowers above it. This a graceful border plant, in good form all summer.

In the cutting grounds, planted in rows

A GLIMPSE OF LAWN IN MR. EGAN'S GARDEN.

eighteen inches apart, so as to allow the planting of annuals between later on, were hyacinth and narcissus and in the canna beds were the early and late tulips, which, when the time comes for planting out the cannas, will be taken up and heeled in elsewhere to be ripened off. As the bed is rounded up towards the center for the tulips and lower and flat for the cannas part of the soil will be carried away June 1, which is about the time the cannas are planted, they having been started in a hotbed.

To-day, April 21, *Magnolia Soulangeana*, which in a sheltered place has rested all winter with a heavy straw wrapping is in bloom, and while it may not be as vigorous and full-flowered as it might in a more genial clime, it gives pleasure to me and mine. *Prunus pendula* and *P. serotina pendula*, two forms of weeping cherries, are showing color well, while *P. triloba* is in open bloom.

As a rule plants have wintered well. Among perennials and biennials *Coreopsis grandiflora* and fox gloves were winter killed, but *Coreopsis lanceolata* has proved hardy and I supposed *C. grandiflora* would also, but I was disappointed. [Don't despair, young plants may yet spring up from pieces of the roots.—Ed.] *Retinospora plumosa* and its variety, *aurea*, are looking fairly well and not as much winter-burned as garden plants of our native spreading juniper, *Juniperus prostrata*, especially the handsome golden form. [This juniper always gets metallic brown in winter, losing its golden color completely, but this is no sign of ill-health or winter-killing; wait till June and then see if it won't be as bright and yellow as ever you saw it.—Ed.] *Retinospora Fulleri*, as usual, is in splendid shape. *Picea Nordmanniana* (Nordman's silver fir), supposed not to do well here, is in good form. The plant is about five feet high and has been protected from the winds three winters by a temporary solid board fence around it. [One of the best conifers in clay ground.—Ed.]

This is not a peach region, but it is a pleasant thing to eat the luscious fruit of your own raising. Early frosts generally do the main damage. I plant close to the south side of a barn, training the tree fan-shape flat against a wide open lattice work set six inches out from the side of the barn. About January 1 I hang common bagging over the tree, leaving it on until about April 20. This retards the swelling of the fruit buds and still allows free circulation of air.

I am still holding back the *Azalea mollis* now in my cellar, as I do not want the bloom caught by any late frost. This plant, wintered outside, while in fair form, is nowise as robust as are those that have been wintered in the cellar.

My record of bedding roses wintered in a cold frame may be of some interest. Those that have come out strong are: Papa Gontier, Tea; Safrano, Tea; Maman Cochet, Tea; Meteor, H. T.; Kaiserin Augusta Victoria, H. T.

Those are in good condition: Bridesmaid, Tea; Letty Coles, Tea; Comtesse de Labarthe, Tea; Bon Silene, Tea; Coquette de Lyon, Tea; Etoile de Lyon; Marion Dingee, Tea; Marie Guillot; Marie Lambert, Tea; Baronne de Berge, Tea; Princess Bonnie, Tea.

Those that died: The Bride, Tea; Perle des Jardins, Tea; Mme. Hoste, Tea.

The easiest handled and best summer blooner among the teas is Papa Gontier. With small plants of the "Three La Frances," La France proper; Augustine Guinoiseau and Duchess of Albany, all hybrid teas, and excellent summer bloomers, the Duchess of Albany wintered best. They were laid down and covered with earth. W. C. Egan.

Highland Park, near Chicago, April 21, 1896.

ROSES AND OTHER NEW PLANTS.

The Crimson Rambler has exceeded my expectations. One year old plants of it potted into 7-inch pots December 31 last were masses of bloom in February and early March. It is one of the most enduring roses we have, flowers remaining on the plant several days without fading. The Golden Rambler or Alister Stella Gray is also fine; this variety is an almost continuous bloomer when well established. Plants of it potted January 3 were in fine bloom in 6-inch pots during the latter part of February. It blooms in clusters of 10 to 12 flowers each. The color of the buds when fully opened is a fine yellow changing to white, and the flowers are fragrant, about two inches across and very double. To obtain the best results with it under glass it should be grown cool; it is a first class noisette rose and probably hardy. As regards the White Rambler, I am waiting to find out what it is.

Lord Penzance's sweet briars come of a hardy race and are most desirable; they are good healthy growers with foliage as fragrant as the old sweetbriar and they root quite freely; I will try the plants in the field this season.

The king of hardy H. P. roses is a new dark variety known here as No. 15; it is a good grower with flower large, double, and of a color almost black and glossy beyond description. It is away ahead of Baron Bonstetten or Prince Camille and Jean Liabaud.

In other new plants the new *Bougainvillea Sanderiana* has fully met expectations; plants here have been in constant bloom for the past six months; the flowers will keep for weeks after they are cut.

The new *Justicia Velutina* is a treasure; its color is a beautiful clear pink and it is a most profuse bloomer, and it can be bedded out in the flower garden the same as a geranium.

Spiræa Anthony Waterer is proving to be the best dwarf crimson flowering spiræa in cultivation.

Vitis Coignetiæ (King of Autumn), Japan maple and *Ampelopsis Veitchii* look washy in company with this vine from Japan. In summer it is no better looking than any common grape vine, when autumn comes, however, it appears in all its glory; and the plant is as hardy as a hickory.

Cannas Italia and Austria have not been overdrawn; they are a mass of bloom here with flowers 6 to 7 inches across and have been in continuous bloom since December. They are getting finer and richer daily. I do dislike to divide and spoil them, but will have to in order to increase my stock. In the morning the house they are planted in is a perfect Eden, the flowers are up to the roof. ANTOINE WINTZER.

SPRING FLOWERING BULBS.

The warm weather of April has brought the spring flowers along very early this season and we now have a very fine show of them. Crocuses opened their first flowers the 31st of March, and at this writing they are about their best. Amongst the finest of them are Czar Peter, a fine light blue; Mont Blanc, a good white and a very large flower; David Rizzio, purple; Ne Plus Ultra, purple, tipped white; Sir Walter Scott, a large, striped flower and Mrs Beecher Stowe, a fine large white variety. The spring snowflakes (*Leucojum vernum*) opened its first flowers on the 8th inst; they do not last long. But while they are in flower they are little beauties. *Scilla Sibirica*, with its carpet of rich blue, opened its flowers the 15th inst. what a pretty little thing it is, especially where grown in a mass. It is also a good thing for an edging to other spring flowering bulbs. The grape hyacinth also opened on the same day as the Siberian squill; this has to be grown in a thick mass before it makes an effective appearance but it is well worth growing as it lasts so long in bloom. *Muscari azureum*, which is nearly related to the grape hyacinth, has a lighter blue flower, and is real pretty, it opened on the 13th too. The variety *Album* is a lovely pure white flower and it makes quite a contrast when planted with the blue one. *Iris reticulata* came into flower on the 15th, this pretty iris is the earliest one we have in this garden and it looks rather odd as its flowers appear before the leaves come up.

Puschkinia Libanotica compacta is a little gem, its white flowers are striped with blue. In habit and growth it looks like the scillas but is much more pretty.

Erythronium dens-canis (the dog's tooth violet), opened its first flowers on the 17th; we have got the large flowering ones, and I must say they are grand: they are of all colors from purple to the purest white. Where planted in masses as we have them here they make a nice show, and are well worth growing. The native one (*Americanum*) is in flower all over our woods here. *Chionodoxa* (glory of the snow) came in flower on the 17th It looks like *Scilla Sibirica*, but to my liking is much prettier. Where only a few bulbs of it are grown they make a poor show, to see them at their best one must have a mass of it. The narcissi are coming along very fast and promise to be fine; we have already got some very fine ones in flower. The first one to open was *N. minor*, a dwarf variety with a true yellow flower. N *minimus* is another dwarf one but much better than *minor*; it has a larger flower and is of a deeper yellow color. It opened on the 14th. *N.* Queen Bess is a lovely daffodil, it came into flower on the 17th It is one of the best of the white varieties and has a lovely yellow cup. *N. Leedsii* opened its flowers on the 18th. It does well. It is a lovely white, and seems to be one of the easiest of varieties to grow. We have a fine clump of it. *N. cernuus* opened on the 18th and is another lovely flower; its perianth and trumpet are of the same length and of the purest white. *N.* Wm. Golding (the swan's neck daffodil) a very large flower with a snow white perianth and light yellow trumpet. *N.* Sir Watkin opened on the 18th, it is a large flowered variety and one of the best of yellow flowers and it is doing very well in the garden. In another week or ten days, if the weather keeps good, we will have a fine show of narcissus, they are promising well and showing plenty of flowers.

Amongst the rarer tulips, *Kaufmanniana* is in nice flower, it is of dwarf growth with rose white flowers and is very pretty. Our other tulips are not yet in flower.

Amongest the hardy herbaceous perennials *Anemone Pulsatilla*, (the Pasque flower) is making a nice showing with its deeply cut leaves and rich purple blossoms it is a very good plant and comes in so early. *Adonis vernalis* (spring adonis) has pretty tufts of cut leaves and bright yellow anemone like flowers. Grow it in a mass. Forget-me nots that were wintered over in a cold frame are in fine flower now. Victoriæ I think is the best one of all, it does not run to seed so quick as *palustris*. The *Bellis perennis* (English daisy) is in full flower; wintered over in a frame they are nice for spring bedding.

In the greenhouses there is not much to speak of, the show pelargoniums are coming fast into flower and promise to be good. What a nice forcing plant *Lychnis Flos cuculi fl. pl.* is! We have it now in fine flower in 6-inch pots, the only thing I have against it is that it is bad for red spider and hard to keep clean from it.

DAVID FRASER.

Mountain Side Farm, Mahwah, N. J., April 20, 1896.

PLANTING FLOWER BEDS.

I have two flower beds, one 44 feet by 4 feet, the other 31 by 4. I wish to fill them with bedding plants that will be handsome and effective and easily taken care of.

For the bed 44 by 4 I think I shall have silver edge geraniums for outer edge, bright colored geraniums for next row, and castor beans or cannas for center; in all five rows, would there be room for as many?

What is the market price for geraniums for bedding by the hundred?

For bed 31x4, lobelia or forget-me nots for outer edge, coleus for next row, and hollyhocks in center. Can I get hollyhock plants ready for bedding?

Hudson, Mass. G. P. K.

We would suggest that for the long bed you use the silver edged geranium for the outside line all round, then divide the middle part into several panels, each one to contain a different kind of geranium, and some of them to be interplanted with gladiolus, *Hyacinthus candicans* or other taller material to give lightness and break the monotony. The white or red-eyed vinca would also make a nice panel and bloom from June till frost. Hollyhocks would be rather large for your other bed, besides as soon as they would be done blooming you would have to cut them down, and this would leave your bed almost empty again. An edging of blue, then panels of coleus with *Gaura Lindheimeri* blossoms hovering over them, and maybe an extra large panel of dwarf scarlet salvia in the middle would be neater if not more pleasing. Address a few postal cards to the florists of your town, or other places, asking what price they charge for geraniums. Some, but not all, florists keep hollyhocks in stock, potted and ready for blooming this year, but probably late.

The matter of filling the flower beds depends largely upon their position and exposure in your grounds, your own taste as regards plants and what plants you already have got ready for planting or are willing to get. The width (4 feet) of both beds is decidedly narrow for anything other than a border effect, and the ribbon line arrangement of planting is not considered very good taste. A bordering of silver-edged geraniums all around one of the beds would be pretty enough, but inside of this border you would have only a space of 2½ feet wide left, and two rows of scarlet geraniums would fill that; castor bean plants shouldn't be considered, for one row of them alone would more than fill the bed, and it looks bad in summer to have a big plant spread over and smother another. One row of dwarf cannas might be all right. In the other bed, while both the forget-me-not and lobelia would be very pretty before midsummer, after that time their period of beauty would be past and you would have to replace them with something else. Blue ageratum (Cope's Pet) would answer the same purpose and last longer.

SWEET WILLIAMS.

I have discarded tuberous rooted begonias as bedding plants, and where I used to have them have made a raised bed of light soil in a place shaded after noon time, and have been wondering if *Dianthus barbatus* (sweet williams) would do well there. I have fifty plants of a magnificent dwarf crimson variety, kept along from slips obtained from the World's Fair. Turning to the catalogue of F. R. Horsford, Charlotte, Vt., I find he says "If large flowers are desired it is necessary to prepare a bed for them; it should be raised above the common level, etc." This has met my case. What say you about them? W. C. EGAN.

The sweet william is an old-fashioned flower that was as beautiful in our grandmother's garden as in our own of to-day, and we love it. We treat it as a biennial, that is, sow the seed in spring this year to give us plants that will bloom in summer next year. It likes rich earth, plenty room, and to be grown on ground raised high enough above the common level that water shall never lodge at the necks of the plants. It is very impatient of hot, dry weather, and unless in moist slightly shaded places it is apt to die out in summer after flowering, to be succeeded by a sward of self-sown seedlings. Of course old plants can be preserved by growing them in extra genial places, and increased by division, but from seed is the commonest way. We find it isn't very hardy, and that a mulching of dry leaves, sedge, old fern or evergreen branches spread over it in winter is a great help in saving it; indeed where the climate is severe or changeable and the snow in winter is not to be depended on, a cold frame is the best place for sweet williams. Naturalized among the bushes, however, it proves far hardier than when carefully cultivated in the open border.

LILIES.

H. M., Lebanon, Ky., writes:

1. "I planted a bulb of *Lilium Krameri* about March 1 in a pot in sandy soil with good drainage; it came up about two weeks ago, and is now an inch high and showing flower buds, but it does not look well, and its leaves are dropping. What is the cause of this?"

Ans. Some local cause. Before a lily starts to grow up it should make roots, for without roots it cannot have a healthy top, and in order to make good roots its growth should be slow. Your bulb was in far too great a hurry for its own welfare. The undue haste was probably caused by too high a temperature and too wet a soil. *Krameri* being a perfectly hardy lily, would probably have done better if planted out in the garden than grown in a pot.

2. "Can lilies stand the hot sun in summer, or do they need partial shade?"

Ans. Many kinds of lilies, as *auratum, speciosum, Japonicum, elegans* and the like, can be grown in the open field or garden, providing the ground is kept well loosened on the surface, but they grow more luxuriantly, hence flower more freely if grown where their roots are well shaded, say by evergreen shrubs, or a mulching of loose strawy material; in fact they do well in mixed borders among other perennials and annuals. As a rule lilies don't like shading overhead, as under the branches of trees, but they do appreciate partial shade from hot sunshine when this is afforded by growing them on the north or east side of a close fence or building.

SPRING.—We are having a remarkable spring in Southern Wisconsin. The first ten days of April were wintery, then it came summer. We have now in bloom out of doors hyacinths, turnip narcissus, including Horsfieldii and Ard Righ and early tulips. *Prunus triloba* and dwarf Juneberry are just ready to open. Hyacinths have been in bloom nearly a week. All vegetation is in a correspondingly forward condition—some very uncommon for this region. ALBERT SALISBURY.
Whitewater, Wis., April 20, 1896.

HEUCHERA, VIOLETS, ROSES.—The winter has proven unusually destructive. *Heuchera sanguinea*, although it has passed through four previous winters unharmed, is entirely dead, and so are the Victoria violets. All hybrid perpetual roses that were not protected suffered; those that were protected by sods came through in excellent condition.
Amherst, Mass. ANSON D. MORSE.

The Lawn.

THE LAWN.

Don't wait till the grass has become quite long before you mow it. There is a prevalent opinion that we shouldn't be in a hurry starting to mow the lawns in spring, that we should wait till the grass has got a good start in life so as to strengthen the roots, hence the crowns, and thus enable the plants to stand the summer's heat and drouth much better than they would if early mown; in fact the first mowing should be done with the scythe. But that is a great mistake. A lawn should be composed of short thick set grasses, allow these to grow long and we weaken the leaves and choke the crowns, and when we do mow the grass little is left but a bleached and enervated sod. We have found it better practice to begin mowing early enough so that the machine can cut the grass over easily, but don't mow close. Another erroneous impression is that all mowings should be left on the lawns where cut by way of mulching the ground and protecting the roots of the grass from hot sunshine and drouth. This too is a great mistake. The cleaner you keep your lawns from weeds, dead grass, and other debris the better and thicker your sole is sure to be. After every mowing wherever the cut grass lies in considerable quantity have it raked up and cleared away; where it is so thin that the noonday sunshine will shrivel it up and out of sight there is no need of touching it. Weeds are apt to infest the lawns in spring, these consist largely of shepherd's purse, wild turnip, dandelion, and plantain, all of which should be pulled out or cut out; for deep rooting kinds like chicory, dandelion, and dock choose a wet day or a time immediately after a heavy rain, because then the ground is soft and the roots can be drawn out easily. Sorrel, chickweed and yarrow, may be lessened by raking off with a steel toothed rake. After weeding roll the lawn. In fact it is good for the grass, and it adds to the beauty of the lawn to have it rolled every week or two.

In the case of tennis or golf grounds rolling the lawn is imperative in order to get and retain a smooth firm surface to play on. In side places as under trees or near the margin of waters when spring flowers as snow drops, crocuses, narcissi, etc. have been grown in the grass, for the good of the bulbs the grass should not be mown over till the crocus foliage begins to turn yellow. In the case of mixed flower beds or borders cut out in grass or with grass edgings, self sown seedlings of larkspur, salvia, œnothera, heliopsis, are apt to come up thick in the sod, greatly to its injury; root them out as persistently as if they were dandelions or wild turnips. Keep the edges of the lawns or grass borders neatly and evenly cut and sheared.

SOWING GRASS SEED IN SPRING.

About grass seed I find that spring sowing is usually disappointing, because unless the soil be very rich and in very fine tilth the grass is burnt up by hot weather before it has depth of root to stand a drouth. I prefer to summer fallow, get the ground into the best possible condition by August 15, and then sow. If the soil be damp enough to germinate the seeds it will take hold, even in a hot and dry time, as the nights get cool by Sept. 1. If the rains be seasonable the sward will be fit for mowing by Nov. 1, and be rank enough to stand a winter's thawing and freezing. But if the sowing be later than Sept. 10 it is liable to be good for nothing on the 1st of May following.

I have used red top grass almost exclusively—five bushels—70 pounds per acre, and 2 pounds white clover well mixed with it. I get the surface finished before sowing, and after sowing scratch it once only with a very light harrow, and then roll. If the soil be very mellow rolling only is quite sufficient. If covered at all the nearer the surface the seed is the surer the catch, unless the soil be very dry. Red top is now much better cleaned than formerly, so by rubbing in the palm of your hand you can more surely judge the proportion of grain to chaff. I use only this fine dressed kind.

If you sow now and the seed misses a native grass called "June grass" soon fills the blank, and makes a fair sward too. It is ripe by June 20. I have not used Kentucky blue grass of recent years, because it is so difficult to sow the seed evenly, as the woolly chaff packs in the sower's hand. Rhode Island bent grass is mixed with red top and blue grass along the coast region, but it won't stand our interior drouth.
Buffalo. WILLIAM MCMILLAN.

Orchids.

ORCHIDS FOR MAY AND JUNE.

No flowers can so well grace a fine conservatory or befit a lovely June bride so much as the beautiful and now popular orchid; their chaste beauty, delicate fragrance and durable quality make them the grandest and most satisfactory of all flowers, especially so when distance is a consideration. Many beautiful things, like roses, violets, etc., will not qualify for "long distance" floral gifts, and are generally disappointing to the recipients of such gifts. The two months above mentioned should produce many of the finest orchids grown, viz.: *Cattleya Mossiæ, C. Mendelli, Lælia purpurata, Odontoglossum citrosmum, O. Pescatorei, O. crispum* in many beautiful forms. Elegant sprays of *Phalænopsis Stuartiana, P. grandiflora, P. amabilis, P. Schilleriana, Chysis bracteseens, ærides* and vandas in many imposing forms and varieties. *Saccolabium giganteum*, all of these vandas and *ærides* can be suspended from the roof and moderately shaded, and they take up no valuable bench space. Several species of the lovely dendrobium family also help to beautify the show house; among these are *D. fimbriatum oculatum, D. thyrsiflorum, D. chrysatoxum* and *D. Jamesianum*, etc. All of them can be wintered in a temperature of 55° to 60°, and will push their flower spikes at the pleasure of the growers, and from one to two months of difference in the times of their flowering can either be gained or otherwise by retarding or forcing without injury to the plant. The chief essential in their cultivation I have found is to give them sufficient rest. They will do the growing, if you provide properly for them, plenty of heat and moisture, and a healthy, buoyant circulation of air without drafts. WM. MATHEWS.

ORCHID NOTES.

The following orchids are in bloom on this place just now: *Dendrobium moniliforme*, a pretty small growing species which does well on blocks in the cool end of the intermediate house. *D. chrysotoxum* and *D. aggregatum*, all free flowering and easily grown species for basket culture; *Oncidium altissimum, O. ampliatum majus* and *O. obryzatum majus*, all of which do well in suspended baskets with not too much potting material; *Cymbidium eburneum*, a very fine orchid with flowers of great substance which last a long time in perfection; it does best in pots with rather a good sprinkling of clean sphagnum mixed through the potting material; *Cypripedium barbatum* and *C. Lawrenceanum*, both of which do best in the stove house, the latter one is a beautiful cypripedium with ornamental foliage, and is vigorous and reliable; and *Lycaste Deppei*, a reliable species for the cool house. There are also *Cattleya Skinneri*, which always blooms in a dry flower sheath; *C. Warneri*, which may be described as a spring blooming *C. labiata*; and *C. Mendelli* and *C. Mossiæ*. We have likewise *Lælia purpurata*, which has often been called the "King of Orchids," and is a splendid easily grown species for pot culture; there are many fine forms of it but no poor ones. WM. FITZWILLIAM.
Baronald, Orange, N. J., April 15, '96.

ROSA WICHURAIANA is the name of the sprig of rose bush sent us for identification by E. O. N.

GARDENING

WILLIAM FALCONER, Editor.

PUBLISHED THE 1ST AND 15TH OF EACH MONTH

— BY —

THE GARDENING COMPANY,

Monon Building, CHICAGO.

Subscription Price, $2 00 a Year—24 Numbers. Advertising rates on application.

Entered at Chicago postoffice as second-class matter.

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All communications relating to subscriptions, advertisements and other business matters should be addressed to The Gardening Company, Monon Building, Chicago, and all matters pertaining to the editorial department of the paper should be addressed to the Editor of GARDENING, Schenley Park, Pittsburg, Pa.

GARDENING is gotten up for its readers and in their interest, and it behooves you, one and all, to make it interesting. If it does not exactly suit your case, please write and tell us what you want. It is our desire to help you.

ASK ANY QUESTIONS you please about plants, flowers, fruits, vegetables or other practical gardening matters. We will take pleasure in answering them.

SEND US NOTES of your experience in gardening in any line; tell us of your successes that others may be enlightened and encouraged, and of your failures, perhaps we can help you.

SEND US PHOTOGRAPHS OR SKETCHES of you flowers, gardens, greenhouses, fruits, vegetables, or horticultural appliances that we may have them engraved for GARDENING.

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CATALOGUES RECEIVED.

Kissena Nurseries, Flushing, N. Y., descriptive catalogue of hardy ornamental trees, flowering shrubs and vines, rhododendrons, magnolias, roses, etc.

Samuel C. Moon, Morrisville, Pa., ornamental trees, plants, shrubs and vines, fruit trees and plants.

Sunset Seed and Plant Co., San Francisco, Cal., spring catalogue of seeds, plants and bulbs, second edition.

D. Hill, Dundee Nursery, Dundee, Ill., evergreens.

C. S. Pratt, Sunnyside Fruit Farms, Reading, Mass., strawberries and other small fruits.

I. A. Wooll, Elsie, Mich., strawberries and other small fruits.

THE EFFECT OF THE MID-APRIL unseasonably warm weather has been very hard upon our nurserymen, trees and shrubs having advanced into growth and bloom so rapidly digging and shipping plants had to be discontinued much sooner than was usual in spring. Under date of April 21 Mr. J. Meehan, of Philadelphia, writes us thus "pears, cherries and even apples are in flower."

SOMETHING NEW OR RARE is what many of our people are after. "I will get some of those —— —— or any other odd thing that you may think I need, so long as it is something that my neighbor —— —— does not have" writes one of our subscribers. This isn't a matter of jealousy at all, but one of "noble contention," and that genial good feeling and happy rivalry that should exist between all neighbors.

TARRAGON.—A. D. M. asked how to propagate it. *Ans.* By division. It may be raised from seed, but we do not always get fresh seed of it, besides the seeds are sometimes refractory. It isn't a very hardy plant at all and often gets killed out in winter, but if well mulched it will survive all right and make a good sod of roots and spreading underground stems. In spring we lift a clump, divide it into three or more well rooted pieces and replant. Half a dozen plants usually give as much tarragon sprouts as one needs for salading or flavoring.

CLERODENDRON BALFOURI.—C. E. asks if it will bloom out of doors. *Ans.* Yes, providing it is properly treated. Grow it in a pot, box or tub, and encourage it to make all the strong growths possible, providing these are well ripened; keep it rather dry over winter, but do not subject it to a very low temperature and never let frost touch it. Encourage this dormant condition till towards spring, in fact merely keep it plump and healthy till planting out time, which may be the end of May, then set it out in moderately light soil and in a sheltered, warm, sunny spot.

DOUBLE GLAZING.—A reader asks "Does double glazing hurt other plants such as roses. I have a cold corner where double glass helps maintain an even sufficiently high temperature, and I would like to continue its use in that place, this doubled portion amounts only to about one-seventh of the entire space covered by glass." *Ans.* By all means use the double glazing as you suggest. Roses, more than any other of our winter flowers, need all the sunshine available, but there should be enough direct sunshine from the other six-sevenths of the glazing to allow you to get pretty nice roses.

ROSA GRANDIFLORA.—An Illinois reader having seen a note in GARDENING (See pages 293 and 326, Vol. III) relative to this large, single white rose, ordered a couple of plants from the Shady Hill nurseries and a couple from Europe, so that he might be sure of getting the true one. He writes: "Both shipments are now at hand, the plants from Shady Hill are bushy, thorny ones, with reddish stems; the imported ones have long, slender, bright green stems, indicative of the polyantha class. This led me to hunt up the name in some rose catalogues and I found it in that of Wm. Paul & Sons, of Waltham Cross, who list it under the heading of 'Hybrid and other climbing roses,' where they give grandiflora as a variety of Polyantha, with single white flowers produced in corymbs, succeeded by showy fruit, distinct and handsome. But this cannot be the rose you referred to in GARDENING last July. You said it wasn't a cl mber and that it was a form of the Scotch rose *R. spinosissima*, known as *Altaica*. In neither Parsons's nor Ellwanger's books on roses do I find the name grandiflora." [This is another unfortunate instance of using the same varietal name for two distinct garden plants of the same genus. The Shady Hill plant answers the description of the one we referred to.—ED.]

SPRING PLANTING.

In the light, deep sandy land of Dosoris we began planting trees just as soon as the frost was out of the ground; it was never a question of wet ground or dry ground with us, for even the day after a heavy rain the soil was in good enough condition for us to work and plant trees in. This gave us at least two months of a planting season, and made work easy. How different it is at Schenley Park, where the soil is the most obdurate kind of clay, retaining water for a long time and to such an extent as to render planting in early spring impracticable. Two weeks ago the cherry trees were in the dormancy of winter; to-day (April 18) they are in bloom, and on account of the wetness and unworkableness of the clay we have been unable to plant a tree or a shrub till this week; and we have an eight-acre spread of land on a rather steep slope which we wish to convert into a lawn, but it is still so wet that we shall have to wait for a few days yet before we can plow it. This is a most serious drawback, because grass sown here about the 25th of April cannot be expected to germinate, strike root deep enough and take sufficient hold of the land before summer sets in to live through the hot weather. This is a very impressive lesson and teaches us that we should use our utmost endeavors to get all of this sort of work done in fall that can be done. At that time the soil is at least dry and pliable, and the earlier it is done in fall the better.

MY HOTBED—WHAT AILS IT?

I have just begun my first attempt at gardening, and as I see you answer all questions in you paper, to which I am a subscriber, I would like to lay my first great difficulty before you. I have a hot-bed frame sunk 20 inches below the level of the ground, and raised eighteen inches at the back and six inches at the front above the ground level. Now this frame keeps full of water in spite of all I can do, and I am very anxious as to the safety of my seedlings, which so far have come on first rate. The frame is filled with about 20 inches manure and about 6 inches earth, and the seed boxes are set on top of that. I have tried to draw off the water by digging a hole at the side of the frame, but it keeps on filling up as fast as I can empty it out. Will the water harm the seedlings any? and if so, how had I better remedy the evil? T. J. T.

Hollywood, Ill.

Your hotbed is all wrong. First find out where the water comes from; if it oozes up or in from the ground then your frame needs bottom draining; if it runs in from the surface then there is something wrong above ground, and you must lead the water away, so that it does not go near your frame. If the manure in your hotbed is water-soaked it is no more a hotbed, but a very cold frame; six inches of soil above the manure is too great a depth and enough to suppress the heat, so that there will be very little left for the boxes set above the casing. In making a

hotbed, first of all prepare for perfect drainage; if the land is clay build the hot-bed above ground. Have the frame ground so high and dry that surface water will run away from it rather than run toward it. In making up the bed use fresh stable manure thoroughly moistened throughout and quite hot at the time; shake out the manure evenly, and tread it down firmly. Put on the sashes and keep the frame close till the heat rises up quite hot again, generally the second day, then put on the soil; if to sow or plant in, two to five inches deep are enough; if to set boxes on, about two to three inches deep will suffice. But be very careful for a few days to let the ammonia escape by keeping a few sashes tilted up a little day and night, else the young plants in the frame may get burned. When the coating of loam, as in your case, is six inches deep there is no fear of ammonia; all that will work through so deep a coating of earth won't be apt to hurt anything.

Aquatics.

WATER LILIES—HOW I GROW THEM.

The inquiry of A. D. M. in GARDENING (March 15) in regard to water lilies induces me to give you my experience with a water garden.

My first outlay was for a few water plants, and as I live where lumber is plenty I had a box of rough hemlock plank made four feet inside measure every way, and sunk its full depth in the ground in my garden near the edge of a large walnut tree and under good sunshine the most of the day. I found it too small for the plants procured and had another similar box placed beside it. I thought the natural soakage would make them tight enough, but they persisted in leaking, and I cemented them inside with a good grade of water lime cement and had no further trouble. I had a fine Cape Cod nymphæa and some others, with water poppy and parrot's feather, papyrus and water hyacinth, and all manner of water bugs and skaters, plenty of the larvæ of mosquitoes and a few frogs. It was a great success and a great treat to myself and friends and a constant source of enjoyment during the season. The year following I tried my luck with starting seed's of the Zanzibar varieties of lilies and was overwhelmed (almost) with success and when the time came to put them in permanent quarters I had so many that I was lacking room, as at first, so I had a box of boards made eight feet long and four wide, made tight, and set level on the ground. It was about one foot deep and I put single plants of the lilies in boxes fifteen inches square and six inches deep, and placed them in the "new pond." I made the soil fertile and followed closely Mr. Goodell's instructions. They were a perfect success. The water was soon shingled with leaves and for months there were plenty of flowers. I had a few other plants in small pots on the borders and would advise for an amateur just about such a "pond" for a beginning; go slow and increase your pleasure year by year.

Last year I was early impressed that my water garden was too small. I was aching for a nelumbium and a *Devoniensis* lily as well as a *dentata*, which I had not yet had, and I must increase my water area if I got them all, so I made a greater "pond," a "lake" this time.

My plan was to use plank, as at the first, and I had a small cellar dug to take in a box sixteen feet long, eight feet wide and eighteen inches deep. I leveled the bottom as near as possible and bedded joists in the dirt, and on the joists spiked the bottom of rough common 2-inch hemlock plank. I drove posts of chestnut close by the bottom and spiked the sides to the posts, making it as tight as it could be made of rough lumber. I filled the dirt in all around and puddled it with water so as to keep the air from the outside of the wood, and leveled the top of the "lake" very carefully. I then lathed it as carpenters lath houses for plastering (a needful thing, as the cement will slide if it is not done), and cemented it with Coplay cement and sand, about half and half, putting it on the sides first and on the bottom about three-quarters of an inch thick. I only made one mistake; the lumber was rather dry, and as it began to absorb moisture from the ground it swelled and made cracks in the cement. After it had done swelling I white washed the entire surface with Portland cement wash and it did not leak at all. On some of the very hot days of last summer I could scarce perceive any loss of water.

As for results: The nelumbium in a section of a large oil barrel was set in the center. The *Devoniensis* and *dentata* lilies were each set in the center of the divided space, and really these three plants covered "the face of the waters." The *Devoniensis* would push its leaves far out on the edge. What a beauty it is; and the *Nelumbium speciosum* is a wonderful plant. I had Zanzibar ricinus for a far back ground and cannas and different grasses near by, and one *Musa* and some caladiums for a screen from the highway. The drouth of the summer sent us a host of frogs and they became a feature of the display, gradually getting tamer as the season advanced. I have noticed no increase of mosquitoes from my water gardens. We are near no mosquito territory and seldom are annoyed by them, and last year there were very few of their larvæ in the water.

My first tanks, four feet deep, have wintered my hardy nymphæas nicely. I cover them with boards and tree leaves, and my "lake" was covered in the same way last fall, having first filled it with water. F. P. AVERY.

Tunkhannock, Pa.

PLANTING WATER LILIES IN A POND.

I am requested to plant water lilies (native) in a pond which falls away six inches in each of the months of July and August. The bottom of the pond is heavy clay loam, and flags and heavy grass grows well about the shore. Would water lilies do well and what else would you advise for ornament? The pond is two acres in extent. A. B.

Medical Lake, Wash.

If any water stays in the bottom of the pond in summer you certainly can grow pond lilies in it. They will grow and luxuriate in the clay loam such as in the bottom of your pond. Get all of our North American nymphæas, such as *N. reniformis* and *N. odorata*; and if permissible don't stop at these. Add to them candidissima, Marliacea chromatella, and other hardy species; also our native nelumbium (*N. luteum*), and the Egyptian and Japanese ones, which, if their roots are kept beyond the reach of ice, should be hardy enough in your waters. And around the margin of the pond grow arrow leaf in variety and pickerel weed, with sweet flag, blue flag, purple loosestrife, etc., around the outside of it. Muskrats are the great drawbacks of water lily growing in open ponds.

The Greenhouse.

GREENHOUSE RHODODENDRONS.

(*Javanicum-jasminiflorum.*)

These comparatively little known plants have been developed to much perfection, and are destined to become conspicuous features of our greenhouses. Rapid strides in the improvement of these plants have been made since Mr. Taylor at Vietch's nurseries raised that grand variety named in his honor, and now we have vivid carmine, bronze, buff, yellow and white flowers among them. In the greenhouse they require a warm moist atmosphere during their growing period, and at no time should they be submitted to a temperature below 50°. They are usually classed as winter flowering plants, but my experience with them would lead one to class them as of late spring and early summer. We usually flower them in May, June and July. While in flower we move them to a north house, when they will last in perfection two and three weeks. For conservatory decoration at that season of the year they are unsurpassed by any other flowering plant. I exhibited some trusses of cut flowers of them at the June exhibition of the Massachusetts Horticultural Society, Boston, last year and a first class certificate was awarded to them. They require to be grown in about one-half loam, the other half should consist of about two-thirds peat and one of leaf soil with good sharp sand mixed through it. Pot firmly; during their growing period they can be occasionally watered with weak liquid manure. Have the compost sweet and free from worms and insure perfect drainage. Give them a temperature not lower than 60°, also partial shade and plenty of moisture at the root and in the atmosphere, and perfect drainage, and when the growths are completed and the buds formed the supply of water at the roots should be diminished a little.

The following are among many varieties that I have grown and I confidently recommend them:

PRESIDENT.—Clear buff yellow with carmine filaments; compact habit and fine ovate foliage.

SCARLET CROWN.—A most brilliant form of orange scarlet; flowers of great substance.

SOUVENIR DE J. H. MANGLES.—Orange yellow with a suffusion of rose pink; fine bold truss; of fine form and substance.

TRIUMPHANS.—Crimson scarlet; distinct and brilliant.

PRINCESS BEATRICE.—Light yellow suffused with pink; very fine light variety of vigorous habit.

MONARCH.—Buff yellow, shaded with orange; filaments of deep rose; short tube, but well formed flower.

MINERVA.—Soft nankeen yellow with rosy filaments; massive trusses; fine form.

LORD WOLSELEY.—Rich orange yellow, slightly tinged with rose around the margin; flowers large and of fine form; robust habit.

DIADEM.—Bright scarlet tinted with carmine; of good habit.

LUTEO-ROSEUM.—Rose colored tinged white, center of flower toned with light yellow, massive trusses.

OPHELIA.—Soft rose, tinted; distinct and compact truss.

THETIS.—Tawny yellow; smaller flower, but distinct.

NE PLUS ULTRA.—Uniform crimson scarlet, one of the brightest in color; large trusses and long tubular flowers fully two inches across; superb!

I have omitted the double-flowered varieties, though some of them are fine, yet to my mind they do not approach the single varieties in beauty. Several of the newer varieties have been obtained by hybridizing *Javanicum-Jasminiflorum* varieties with *K. multicolor*, a species introduced from Sumatra, the treatment of which is the same as for those enumerated above. The plants have small and narrow leaves and somewhat smaller but beautiful flowers. Among them are:

MRS. HEAL, with flowers about two inches in diameter and pure white; the tube is short open and spreading.

RUBY is a free flowering kind with deep coral red flowers and a rich and shining compact truss.

The above are the only two varieties which I have yet proved, but am satisfied that they will become permanent additions to greenhouse decoration.

WILLIAM ROBINSON.

North Easton, Mass.

SUMMER TREATMENT OF CALLA LILIES.

When the plants are not needed for flowering, which will be towards the last of May, turn the pots on their sides on the bench where they stood, the glass being shaded. They should receive no more water. Let them dry as much as they will, it will not hurt them. By the middle of August there will be a pot filled with earth baked dust dry, with a calla root well ripened. Break away the earth carefully without injuring the calla. Clean off all the young offsets it may have made and repot firmly in a good, rich soil. Set the pots out of doors on a bed of ashes, to keep out the worms, and cover them with a little hay or other mulching. Water sparingly and only when dry, which will not be often, until they start to grow. They will come through the hay all right. Let them remain there until time to bring them in; about the middle of September. They will begin to bloom at once and with proper care will keep it up until May again. In potting use a handful of coarse rotten manure or drainage in preference to the usual "crock." It will answer the purpose just as well and the plant will prefer it. The offsets may be planted thickly in a flat and grown on. P. F.

The Fruit Garden.

STRAWBERRIES.

Carefully examine the beds to see that they are clean and the surface soil loose, then mulch them. The mulching may consist of any strawy or littery stuff that can be drawn up snug against the crowns of the plants, cover the space between them and save the fruit from getting gritty from lying on the ground or being spattered with dirt from rain storms. Tree leaves are of little good, as they are so easily blown away. Strawy manure is good, and the rains will wash it clean on the top before the berries are ripe. The mulching also conserves the moisture in the soil and in this way adds to the sustenance and perfection of the fruit. Many berry growers mulch their strawberry beds heavily in winter and leave the mulching undisturbed till the plants start to grow in spring, when they draw it aside from off the tops of the plants to around them and the space between them, leaving it there as a summer mulching, and an excellent plan it is. What's the use of mulching the beds so early in the season when the berries won't be ripe for a month yet? is a question that may occur to many. We can apply the mulching now easily and effectively and without any hindrance from large growing foliage or bunches of flowers, but delaying it longer renders the work more difficult to do and we cannot make such a nice job of it, besides we are apt to destroy a good many of the flowers. Fill up any gaps in the beds or rows from surplus beds. This is also a good time to plant new beds. Plants set out now may not bear any fruit this summer, but they will make early and good runners and become a fine bed next summer.

THE FRUIT GARDEN.

The first growth of a plant should be its best. Keep the ground moist and mellow by frequent cultivation. This work warms the soil, starts the plants early, makes plant food more available and lessens the liability of injury by frost, drouth or insect pests. Frequent cultivation conserves moisture, holds it near the surface, where it is of most value to plants and allows moisture from light showers and dews, to penetrate more deeply. Weeds are robbers of all the best elements of plant life and should not be tolerated in the garden. Potatoes, or other vegetables may be grown between bush berries the first season, but never any crop to shade the ground. Stimulate rapid growth by liberal top dressings of the fine manure and wood ashes.

Success in the garden depends much on good care in the beginning. Have no missing hills. If plants have failed to grow set new ones in their places at once.

To secure large nice fruit, severe pruning is necessary. New growth on both old and new currants and gooseberries should be cut back and old wood in center of bush removed. Laterals on black raspberries cut back one third or one-half. Remove all weak canes and broken branches. The ideal bush should be round or oval in form, stocky, and pruned to admit free circulation of air. Currants are often injured by the borer. The egg is deposited about June 1, and as soon as hatched, the young borer eats its way into the pith, and feeds on on the life of the plant. As soon as the leaves start, the affected canes, which now have a black center, are easily discovered by their sickly appearance and should be cut out and burned at once.

Sparta, Wis. M. A. THAYER.

RASPBERRIES.

By this time raspberry bushes should be tied up, pruned, cultivated and mulched. If this work has been neglected, however, get it done as soon as possible. All weak, strawy canes should be cut out of the stools and no more stout canes left, say five or six, than will have plenty room to grow and properly mature their branches and bunches of flowers and berries. Probably the tips of the canes got cut back more or less by frost. In this case cut them back to good sound eyes. Mulch the ground with any strawy or littery stuff to keep the fruit clean from grit spattered on to it in rainy weather. Prune in the black caps a little and support them between lath or wire rails, so that the berry-laden branchlets may lean over them. Dewberry vines are also much better for having some support to keep them off the ground and free from grit; a mulching of strawy litter under them and an arch of wire netting for them to clamber over usually furnish this; a strip of netting four to six feet wide and bent like an inverted V and fastened in place with stakes, we have found to be very convenient and serviceable.

CURRANT AND GOOSEBERRY BUSHES.

These are now pretty well advanced in leaf, and some of them in bloom. Pruning should have been attended to before now, but if there are any old gnarly branches that should be removed don't hesitate to do it now, for the good estate of a berry bush is young wood. A mulching under the bushes will save the fruit from grit. But the most important thing to attend to now is the currant worm; get some fresh hellebore powder, and no matter whether there are any caterpillars on the bushes or not, dust the foliage all over with some of this powder. Use an ordinary powder bellows and apply the dusting early in the morning, say while the dew is still on the foliage; the dew catches and holds the powder. In a week or ten days from now repeat the application, and whenever there is a sign of a caterpillar on any of the bushes run for your powder bellows and give the pest a dusting.

BLACKBERRIES.

Cut out every bit of dead wood in the plantation and clear it away. If the canes have grown so long and strong and branchy as to become a thicket or unmanageable, shorten in the branchlets and cut back the canes a piece, then tie the canes up to stakes, or arch those of two stools together for support, or brace them up between rails of lath or wire. As blackberry bushes are far more vigorous than are raspberry ones we prefer letting them carry longer canes than the latter do. If you have got any of the yellow rust in your bed it will show now; there is no cure for it, root out and burn every yellow-leaved sprout as soon as it shows itself above the ground. In some localities it is very prevalent among both the garden and wild blackberries, but only in spring and early summer. Suckers are apt to spring up all about the old plantation; root out every one you don't need now or care to save for setting out in a new plantation next fall.

OLD-TIME VARIETIES OF STRAWBERRIES.—J. A. F., Milton, Mass., writes: "Can you tell me where, if anywhere, the following old-time varieties of strawberry plants are still to be obtained: Bush alpine white and red; Burr's new pine; and President Wilder? I have just noticed in the last number of GARDENING another inquiry for bush alpines. The questioner is referred to Ellwanger & Barry, but I have already applied to them without success."

Ans. We do not know. If any of our readers know, will they kindly give us the desired information? The Wilder used to be grown a good deal about Boston, and was long famous for its fine flavor. If you addressed a letter of inquiry to the chairman of the fruit committee of the Mass. Hort. Society, Boston, he would bring the matter up before his committee, and some of them would be sure to know something about the varieties and who has them. And then please let us know, that others may also be benefited.

BIG JAPAN CHESTNUTS FROM SEED.—E. M. G., New Mexico, writes: "I have received a number of large chestnuts from Japan and have planted them. May I presume that these seedlings will furnish me with trees bearing nuts similar to the parent, or must I graft from some bearing tree of known quality, such as Paragon?" *Ans.* While it is reasonable to assume that a large number of the seedlings raised from large chestnuts may prove to be large fruiting varieties, there is no absolute certainty of this. Our own experience is that seedlings often differ a good deal from their parents in size and fullness of their nuts and the earliness in bearing of the trees. But grafted trees are sure to bear the same sort of nuts as the parents from which the cions were taken. The Paragon is a fine large-fruited chestnut, but it is European—not Japanese.

The Vegetable Garden.

THE VEGETABLE GARDEN IN MAY.

At this season there will be plenty of work to do in the vegetable garden. Weeds will make their appearance and must be attended to at once. Nowhere does the old saying "A stitch in time saves nine" apply more forcibly than in the garden. To-day the slightest stirring of the soil destroys the tiny weeds by the thousands. Wait a week and what a job you have!

BEETS AND CARROTS.—The early sowings will need to be thinned and kept clean. Sowings may be made of beets for succession and of carrots for main crop.

BUSH BEANS.—As soon as danger of frost is past, about the 10th of May, sowings may be made in rows 2½ feet apart. Round pod Valentine for green, and Black Wax, are as good as any. Sow for succession every 10 or 12 days.

LIMA BEANS.—Get the ground ready at once and when the cold May storm which usually comes about the 10th or 12th has passed, and the weather settles, make up the hills and plant. If your ground is heavy raise the hill well up. If it is light a slight rise is sufficient. Do not be afraid of putting plenty of seed to each pole. When they are up it is easy to pull out the weak ones and keep only the most vigorous. The "Potato" Lima is the best for market; for home use the large white Lima is esteemed.

CABBAGE.—Keep the plow and hoe moving in the growing crop. A little nitrate of soda and superphosphate applied between the rows and worked towards the plants will speak for themselves. If an early fall crop is wanted, sow a bed of seeds now. Flat Dutch is a good kind.

CELERY.—Do not neglect the seed bed. Keep it free from weeds and if the plants are too much crowded thin them out. It is better to sow a larger bed and thin the plants, than to sow more thickly and transplant them.

CUCUMBERS may be sown out of doors towards the middle of the month. They can also be sown now in the cold frames where lettuce has been grown, and so brought in ahead of the "rush" using the sash to forward them.

CORN.—As soon as danger of frost is past and the ground is warm it may be planted. White Cory, Crosby, Perry's Hybrid, Early Mammoth, and Stowell's Evergreen are all good kinds for succession crops.

LETTUCE.—Sow for succession every two weeks where the plants are to stand, dropping a few seeds at each place. When well started thin to one strong plant. Salamander is as good as any. White Russian stands the heat well but is not so good as Salamander.

PEAS.—Late peas may be sown yet. Heroine and Stratagem are good.

PARSLEY for winter use may be sown where the cold frame lettuce has stood. If the weather is dry when sowing, the beds may be mulched with salt hay or straw. But be sure and take off the mulching before the parsley comes up. Double Curled is the variety usually grown and it should be mowed off twice before winter to get a short, stocky growth, that will bear frost.

STRAWBERRIES.—If you grow any strawberries look to the mulching. See that it is pushed close to the plants so as to keep the fruit clean and if any large weeds show themselves pull them out carefully. P. F.

Miscellaneous.

THOUSAND-LEGGED WORMS INFESTING GREENHOUSES.

J. G. C., Kansas City, Mo., sends us specimens of an insect pest that is doing considerable mischief in his greenhouse. It is one of the thousand-legged worms. Mr. C. writes: "We have used ammonia as strong as we dare, soapsuds, powdered lime, and we have taken all of the plants out of the house and washed the benches and other parts of the interior and sprinkled them with powdered lime, then put on two inches deep of cinders on the benches and covered with lime before replacing the pots, and still the worms come, lying under each pot, from one to a dozen of them, and also on top of the cinders. In the greenhouse are three b ds of earth mixed with sheep manure from the stock yards."

The greenhouse pest of the above communication proves to be, upon examination of the specimen sent, one of the numerous species of "thousand-legged worms" that occur in the United States. Those that usually come under observation have rounded, cylindrical bodies, as seen in the family of Julidæ. Those received are flattened and spreading out at the sides, where the numerous short legs with which they are furnished have somewhat the appearance of a fringe. Most of them are about three fourths of an inch long, of a reddish-brown color, and are apparently full-grown, while others are about one-half an inch in length and whitish. The head bears a pair of seven-jointed antennæ, and the body twenty-nine pairs of legs—one to each of the first three segments, two pairs to the following thirteen, and the last three legless (apodal), the hinder angles of the segments are acute.

They evidently belong to the genus *Polydesmus*, near to the European species *Polydesmus complanatus*; or "the flattened millipede," which is represented by Curtis and other writers as being one of the most destructive of its kind, feeding upon the roots of wheat, onions, pansies, and several garden products. Dr. Fitch, in his "Tenth Report on the Insects of New York," has given a detailed account of the habits of one of the "flattened centipedes," which he regards as identical with the European *complanatus*. It seems, however, to be different, for that species has not been recognized as yet in our country. It is thought that the form that Dr. Fitch wrote of (without any accompanying description) may have been the *Polydesmus Canadensis* Newport, figured and briefly described by Dr. Packard in his "Guide to the Study of Insects," page 677. He represents it as "crawling everywhere over the damp surface of the ground at night in search of the nicest, daintiest food it could discover, and withdrawing into the crevices under chips, stones and similar situations during the daytime." The under side of cucumbers lying on the damp ground were often almost covered with them and

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the skin much eaten. The roots of onions when lifted were found eaten entirely off by them—entirely arresting the growth of the bulb. From finding many of the worms in the stalks of cabbage distorted with warty swellings and cracks, Dr. Fitch was led to believe that they were the cause of the disease known as "anbury" or "club-foot" in cabbage.

The Myriapods, a class embracing the Centipedes and Millipedes, have not been given much study in this country, and therefore comparatively little is known of them, either scientifically, or in their economic relations. Many of the millipedes feed only on decaying vegetable matter, and are therefore of minor economic importance. Of those recognized as injurious to vegetation from attacking living plants we are still without knowledge of such approved methods of dealing with them as will ensure protection from their varied forms of attack, especially when attack is so severe and general as above reported in the Kansas City greenhouses. To meet such an emergency we can only give a few remedies that have been recommended, and suggest some methods which give promise of being aidful if not entirely efficient.

Lime has been represented as a remedy by several writers, yet it has not apparently been of particular service in the present infestation. John Curtis, the eminent author of "Farm Insects," states that soot spread over the surface of the ground will drive the plant-feeding millipedes away, and also recommends spreading old cabbage leaves as a bait for attracting them, when they may be killed with hot water.

As they are mainly nocturnal feeders, many could be killed by lifting the pots and sprinkling diluted or pure kerosene on the worms gathered beneath, or wherever they may be seen on benches or elsewhere. The kerosene may be diluted by shaking it briskly in a pot, or better still by making it into a strong emulsion. Pyrethrum and powdered hellebore might each be experimented with, as a contact insecticide, either in its powdered state or mixed with water.

Probably the best results would be obtained by the use of traps or baits. Small pieces of board lain on a damp surface would be attractive as hiding places. Dr. Fitch states: "On raising up a chip or fragment of board that happens to be lying anywhere in the garden you will probably find lurking under it a dozen or it may be fifty or those worms."

The traps would be much more efficient if made more attractive by placing beneath them slices of potatoes, turnips or carrots. In England, slices of mangolds have proved to be one of the best baits that could be employed. If the baits were poisoned by dipping them into a Paris green mixture, it would not be necessary to visit them so often for the collection of the worms.

I think it probable that the infestation of the greenhouses has come from the piles of manure brought into them, as millipedes are known frequently to abound in manure, and are believed to breed in it. If on examination they prove to be present in large numbers in the manure, some efficient measure as may suggest itself, should be taken for destroying them in it, and the manure should be removed to some distance from the houses.

J. A. LINTNER.

Office of N. Y. State Entomologist, Capitol, Albany.

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In growing twining vines against a house wall, especially those cut to the ground each year, if a strong twine is not used (and I use it a great deal, as when cleaning up time comes in the fall one can take it down so easily and use fresh string the next spring) it becomes necessary to use some trellis that is non-obtrusive to the eye when bare and unoccupied. The method so commonly used of taking the proper length of chicken fence wire and slanting it up against the wall to become swayed and distorted by the wind is not in keeping with the neatness that should be characteristic of all homes. I lately put up a trellis that so pleased me, and I am the one most interested, that I imagined among the many readers of GARDENING some one might like to "go and do likewise." My trellis is six feet wide and ten feet high from the water-table, which at this point is two feet above the ground. I used three planed scantlings two by three and one-half inches, cut ten feet long. These were placed upright against the wall three feet apart and resting upon the water-table, and spiked firmly in place, the outer edge standing out from the face of the wall three and one-half inches. On top of these, extending the six feet across, was placed another scantling. You might compare it to a double door frame, with the water-table as a threshold. Galvanized iron staples were driven in one foot apart in all the scantlings and the edge of the water-table Seventy cents' worth of twisted galvanized wire was run through the staples diagonally, forming a one foot mesh. The scantlings had been painted the color of the wall, and at a short distance was hardly noticeable.

ORNAMENTED CLOTHES POLES.

Mr. J. W. Elliott's picture of a vine on a clothes line post gives us all something to think of. Perhaps that solves the servant-girl question so perplexing to the suburbanite. If she can pick a posy while hanging out the washing it may be an incentive that will induce her to remain long enough to send for her trunk. The idea of utilizing the posts is a good one, especially if the posts be placed irregularly here and there instead of forming a square. I am going to adopt the idea, but will use a short galvanized chain stapled into the post, having a ring at the end. If the vine becomes somewhat bushy at the top the chain can hang out through the vine and be readily reached.

Highland Park, Ill. W. C. EGAN.

GENISTA—CYTISUS.

DEAR SIR:—Please clear my mind from the muddle it is now in regarding the difference between genista and cytisus. A friend has a plant that he calls cytisus, but which I have always known as genista. J. B. G.

We presume the yellow flowered shrub so abundantly grown by florists for their Easter trade and so freely used at that time for home and church decoration is the plant that prompted your question. Its technical or proper botanical name is *Cytisus canariensis*, but it is generally known as genista, using this word as an English and not a botanical name for it. The same licence occurs in the case of many other plants, for instance lemon verbena, which generically is not *Verbena*, Lady Washington geranium, which botanically is *Pelargonium* and so on. Your friend uses the true botanical name (*Cytisus*), and you the accepted English one (genista) which is also the true botanical name for a near of kin genus.

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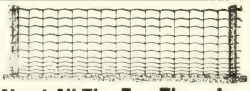

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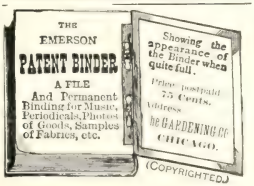

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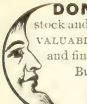

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GARDENING

Vol. IV. $2.00 A Year. 24 Numbers. CHICAGO, MAY 15, 1896. Single Copy 10 Cents. No. 89.

THE BEACH PLUM (*Prunus maritima*).

Trees and Shrubs.

THE BEACH PLUM.

(*Prunus maritima.*)

The beach plum is a big bushy shrub or a small bushy tree found wild in abundance in sandy banks along the seashore. There is a current impression that the beach plum grows only three or four feet high, but this is wrong; we had it fifteen feet high at Dosoris, and when we used to cut it back, young growths two to three feet long would shoot up in a year. Along the seacoast at Dosoris it was quite plentiful. As a wild plant it is one of our most beautiful shrubs and fortunately, it is perfectly at home in cultivated grounds. In the garden it roots well, grows well, looks well all summer, blooms with the utmost profusion, and later on ripens a heavy crop of little purple plums. Although the fruit is edible and gathered and used for preserves, it isn't a plum the small boy will ever hanker after; and it is as much insect stung and wormy as are any other plums we know of.

Our illustration is from a photograph of a piece of a bank of these plum trees in full bloom at Dosoris and taken two years ago. The flowers are small, white, and produced in such abundance on the still leafless branchlets as to give the shrubbery the appearance of a bank of snow.

For seaside planting, that is, for places where the salt water may now and then wash over the roots, we have nothing better for use than the beach plum It stands pruning well. And strange to say, although a denizen of our sandy seashores, it likes good garden ground when it can get it, but is grateful for a foothold anywhere.

Perhaps a leaf from our diary written at the time when this photograph was taken may be interesting to some of our readers, as it will show what other trees and shrubs were in bloom at the same time as was the beach plum.

May 5, '94. Fine weather, very dry. *Prunus maritima* (beach plum) in fine flower, but hardly at its best; not fragrant. No leaves yet.

Prunus spinosa fl. pl. (double-flowering sloe)—at best in flower, and leafing out nicely.

Prunus Mume from Japan, large pink flowers; about past.

Prunus Maackii, Siberian bird cherry; grand. Flowers larger and sweeter than those of any other bird cherry.

Prunus Americana, trees are perfect snowhills of white flowers; leaves not yet.

Prunus angustifolia, trees a cloud of little white flowers, only striking because of their quantity.

Prunus pumila, from the Black Hills, very full of white flowers.

Prunus Pissardii was very full and beautiful, but now all past

Prunus pseudo-cerasus fl. pl. large double white and pink flowers, which had been superb, but are now past their best.

Prunus nana in good flower.

Prunus Myrobalana, white, going past.

Prunus Pennsylvanica, in white spiræa-like umbels, in perfection and most plentiful.

Prunus tomentosus, pink, past.

Garden plum trees are past th ir best bloom; so are cherry trees; peach, nectarine and apricot trees are past; pear blossoms are at their best; and apple blossoms beginning to open.

Pyrus Japonica (Japan quince) in all its floral glory everywhere and in every variety.

Pyrus arbutifolia, not quite out yet.

Pyrus Parkmannii at best, splendid.

Pyrus floribunda in many varieties most lovely; in fact the crimson tips of the flower buds are prettier than the open blossoms.

Pyrus Malus fl. pl., double-flowered apples, opening but not quite out yet. Aren't they lovely.

Halesia tetraptera and *H. Meehani* showing many buds, but none of them have changed to wh te yet.

Berberis "Hakodata," very free; pale yellow flowers, not quite out yet. *B. stenophylla*, opening, not quite hardy. *B. Thunbergii* in full flower and leaf, and some of last year's berries still hanging on to the bushes.

Rhodora Canadensis in good flower, so also is *Andromeda polifolia*. *Rhododendron Vaseyi* is in fine bloom, and some days ahead of any other of the azalea section.

Ribes sanguineum, a little past its best.

Elæagnus longipes full of little scurfy yellow silvery blossoms which because of their great multitude make the plant really good looking when it is in bloom.

Ho se chestnut trees leafing out, but none in bloom yet.

The Norway maples full of umbels of greenish flower are quite conspicuous; leaf-buds are bursting, too.

Lilacs, many of them are showing color but none of them are open.

The fragrant bush honeysuckles, also *Standishii* are past, but *Lonicera cærulea*, not pretty, is in full flower.

Kerrias, single and double, plain and variegated leaved, are in good flower. Flowering currant, ye low, at best.

Red bud, Japanese, at best; the American species is barely out ye .

Flowering dogwood, turning to white, but blossoms not fully developed.

Deutzia parviflora and *D. gracilis* are in about the same stage of advancement but won't be open for some days to come

Fothergilla alnifolia, every little branchlet is tipped with a white furry ball of blossoms

Rhodotypes kerrioides, good, but not at best.

Daphne Genkwa, the blue daphne from Japan, at best; its leafless stems covered up close with bluish pretty flowers are very striking.

Xanthorrhiza apiifolia (shrub yellow root) quite full of clustered bunches of chocolate blossoms. Although not a showy plant, because of its many flowers and their long-lasting nature this is a very desirable little shrub.

The mahonia or evergreen barberry in shady places still has a few flowers, but as a rule its golden blossoms have fallen.

Xanthoceras sorbifolia is laden with prominent racemes, but the blossoms are barely open.

Rubus deliciosus in fine bloom but not at best.

Japan maples are leafing out, more striking in their foliage colors than most shrubs in their blossoms.

The staphyleas are opening, so are the Chinese wistarias in warm sunny exposures and the double flowering almonds are very beautiful.

Coronilla Emerus is laden with little crimson-tipped yellow pea flowers.

Calycanthuses are in bloom, so are the green *Celastris Orixa*, and several spiræas as *Thunbergii* and the double *prunifolia*.

Among the early viburnums in bloom are *Lantana* and its variety *rugosa*.

To help us remember the season we may also mention a few of the common est hardy perennials making a show then. They contained moss pinks, *Orobus vernus*, Iceland poppy, white cucullata violets, golden alyssum, evergreen candytuft, *Veronica gentianoides*, *Anemone sylvestris*, *Stellaria Holostea*, Siberian large-leaved saxifrages, Canada and Siberian columbines, pansies, etc.

VITIS COIGNETIÆ.

Apropos of your note about this Japanese vine, page 245, I would say regarding the color of its leaves in the fall, that some plants have been here for three or four years, and the foliage of none of them has so far changed color at all anymore than if it had been of ordinary grape vines. Why these plants fail to take on bright color I am unable to say. The stock came from Prof. Sargent

Philadelphia. J. MEEHAN.

Prof. Sargent in his Forest Flora of Japan speaks of it as "the noble Japanese grape vine," and in his magazine *Garden and Forest* writes: "No climbing plant, except, perhaps, the *Ampelopsis tricuspidata* or *Veitchii* of the same country, compares at this time (November) in brilliancy of the foliage with the grape vine of northern Japan, *Vitis Coignetiæ*. * * In the forests of Yezo, *V. Coignetiæ* climbs into the tops of the tallest trees, filling them with its enormous leaves, which in autumn assume the most brilliant hues of scarlet. In this country it appears to be perfectly hardy, and promises to present in autumn as brilliant a spectacle as it does in its native country. It is both in the size of its foliage and autumn coloring, a much more desirable ornamental plant than any of our American grape vines; and it can be planted to advantage wherever sufficient space can be given it to climb among tall trees or to cover large arbors or other edifices."

HOW TO MAKE A NATURAL ARBOR.

There are several fast-growing weeping trees, that can easily be trained into suitable forms for natural arb rs, the English weeping ash and Teas' weeping mulberry being among them. A great deal d pends upon starting them right, but the chief difficulty is to obtain specimens grafted high enough. They should be worked at least seven feet high—most of those on the market are seldom over five, consequently worthless for arbor spec mens.

First get your tree. When you accomplish this, you are extremely lucky, and well on the road to success. Plant it in good soil in some out-of-the-way place—not in its permanent home, for it is to be in an ungainly looking harness for a time. Head it in well, and fasten the main trunk to a stout stake to hold it firm. Place four posts, eight feet high above ground, and five feet apart, in the form of a square, the tree being in the center. Run four strips across the tops of the posts, thus connecting all by a square band. Then nail narrow strips of wood across from one of the sides to the opposite one, on top, and one foot apart. These strips should be about twelve inches above the top of the tree. Cultivate the soil around the tree often and thoroughly and mulch in the fall with good manures, thus encouraging vigorous growth. As the new growth extends hold it out at right angles to the trunk and parallel to the frame above by fastening it up loosely with thick soft string, dividing and spacing the branches so as to form a disk. When they have reached out far enough to please you, let them droop and extend downwards. The main branches, being kept out straight, will after the ripening of wood for one season, remain permanently extended and form the stationary ribs of your arboreal umbrella.

In a few years the tree will be ready for removal to its permanent home. Choose early spring for its removal, give it a hole at least five feet in diameter and three deep. If you want a good structure you must build a good foundation. Move carefully, and when in place, if an ash, cut all growth back to the extreme end of the horizontal arms, and afterwards, if necessary, cut an opening into the arbor.

The Weeping mulberry is more easily moved, and all the necessary trimming will be to cut a door in the drooping branches. W. E. EGAN.

TROPICAL CONIFERS.

I write to you for some information that I have tried to obtain from every source at my command. I have quite a collection of coniferæ on my place here and I have recently determined to add, if obtainable, a number of the tropical and half hardy conifers to be grown in tubs and "plunged out" in summer. Can you advise me of any source to which I can apply for specimens of the various araucarias, cryptomerias, agathis, *Pinus patula*, etc.? Is it possible to obtain such specimens from any nursery, or do they to be picked up singly here and there? A. B. B.

Stratford, Conn.

Ans. Write to James Veitch & Sons, King's Road, Chelsea, London, England, telling them exactly what you want and how much money you are willing to spend for these things, and let them get the trees for you. Only a few kinds of these trees are carried in stock by nurserymen, they have got to hunt up and get the others wherever they can find them, but it is far better to let Veitch's people do this than bother with the thing yourself. No firm in the nursery or any other business stands higher than the above. You should get Veitch's book, "A Manual of Coniferæ," it will give you all the information you want as regards the various tropical and extra-tropical coniferous trees of the world.

THE WISTARIAS WON'T BLOOM.—R. P., Dayton, Ohio, writes: "Why do not our Chinese wistarias blossom? I have 10 or 12 vines consisting of the best varieties—white and purple—bought from most reliable dealers, and all are strong and vigorous, and from 5 to 8 years old; they have a southern and western exposure with plenty of room to grow—but so far

BEDDING IN HUMBOLDT PARK CHICAGO

not a single truss of flowers has appeared on any of them."

Wistarias, especially when grown in deep, rich ground and making luxuriant growth, often make much wood and live through a good many years before they begin to bloom, but after they do start to flower they are likely to continue to blossom year after year uninterruptedly. Wistarias should thrive well enough with you so far as exposure goes; if they are over luxuriant stint the supplies and pack the ground firm; if of slow growth rather unfasten the ground and keep it heavily watered in summer. It often happens, too, that seedlings—that is, young plants raised from seed—are far more slow to bloom than are those raised from layers.

The Flower Garden.

BEDDING PLANTS.

The varieties of bedding plants outside of geraniums are as great as could be desired. The parks, of course, are an exception and people often come here and call for plants "because we have hunted over the whole city and can't get them nowhere."

Next after geraniums, sweet alyssum is most seen, and especially the double form of it, which does equally well on the heavy clay soil as on sandy ground; this is more than can be said about the single varieties, they don't give satisfaction on our heavy soil. Heliotropes as bedders do not seem to be quite showy enough, but they are splendid for mixing with other plants in the flower stands or baskets.

Lantanas, especially the dwarf growing forms, are good bedders, blooming profusely the whole season. For yellow, Golden Ball is one of the best, with Queen Victoria as pure white and Perfection for mixed colors (yellow and lilac). Ageratum is certainly the best blue flower we have for continuous bloom, and is suitable both as a border plant and for beds of mixed colors. The dwarf forms of late years' introduction are quite an improvement on the old variety *A. Mexicanum*. If a profusion of flowers is wanted, please note that excessive watering means few flowers and much foliage. Another blue flower that is used considerably for bedding in a larger degree than the ageratum is the lobelia. Certainly it is beautiful, but its flowering period is rather too short for use in great masses. Those most in use are Crystal Palace and Emperor William, and of the trailing speciosa for vases and baskets.

Torenia Fournieri, a very beautiful border plant with blue and white flowers, deserves to be more popular than it is.

Vinca rosea and its variety *alba* are other varieties that one seldom meets with. On account of their continuous blooming and easy culture they should not be missed in general bedding.

Salvia splendens makes a beautiful bed, but is more desirable in the perennial border or among the shrubbery, as they do not come into flower before the latter part of the season. The variety Clara Bedman, that some of our seedsmen were booming last year is certainly not as good as *splendens*.

Fuchsias are a failure for outdoor bedding in this climate. The only place I have seen them grown successfully is in a border along the north wall. If such a situation can be had they are well worth trying. One of the best double white ones is Mrs. E. G. Hill. Phenomenal, a double purple, M. Alphand, single, violet and scarlet, speciosa, single, red and white, and Beauty of Exeter, double blue and pink, are fine sorts.

Nierembergia frutescens, useful for borders and mixed beds, is also very desirable in baskets and stands. The flowers are pale blue shaded to white and densely produced all summer. *Erythrina cristagalli* is fine for the perennial border and the shrubbery, it makes also a beautiful bed when massed, 3 to 4 feet high and is a vigorous grower.

The feverfew (*Matricaria inodora flore pleno*) is very fine for bedding when replaced with other plants after it is through flowering. Verbenas in all colors are undoubtedly fine bedders; they like to close up the season rather early.

Marguerite carnations have of late years become quite an acquisition to our general list of bedding plants, and as they will flower from seed sown in early spring, the garden should never be without them. They are very pretty in the mixed border as well as in massing.

Petunias are splendid bedders, both the single and double forms. It is surprising to see what an improvement has recently been effected in this plant. It is equally good for beds or flower stands.

Another plant useful in the planting of flower stands is *Mahernia odorata* with small, golden, bell-shaped flowers.

Gazania splendens, whose flowers are bright orange with a black and white spot at the base of each ray-floret is also good. This plant is likewise at home in the rockery.

Abronia umbellata, whose flowers are rosy pink, is fine for vases and rockery.

Ivy-leaved geraniums are some of our best plants for the filling of vases and hanging baskets, and quite a number of varieties of merit are grown. Those mostly used are Count H. de Choiseul, (pale blush); Souvenir de Charles Turner, deep pink, almost scarlet, probably the best in cultivation; Garden's Glory, bright scarlet, and Jeanne d' Arc, white.

VINES SUITABLE FOR STANDS.

German ivy—(*Senecio mikanioides*) is a very rapid grower *Thunbergia alata* has yellow flowers with dark purple center. *Maurandya Barclayana* with flowers of violet color is a strong believer in "the survival of the fittest." *Cobæa scandens* is a rapid grower with dark purple campanula flowers, and is a splendid climber for the porch. *Lophospermum scandens* is a vigorous vine with rose purple flowers. *Vinca major* (periwinkle) and its varieties *elegantissima* and *Harrisoni* are the best vines for large flower stands.

Smaller vines or trailers for vases and baskets are *Mesembryanthemum barbatum*, *M cordifolium variegatum* and *M. crystallinum*, all with tiny pink flowers and *Othonna crassifolia*, a very pretty trailer with small yellow flowers

Calceolaria rugosa although not a trailer is well adapted for filling vases. Its golden yellow flowers instills a considerable amount of life into our stands. *Tropæolum*, both the dwarf and taller varieties, seem to give best satisfaction when used in vases. For bedding I have never found them to give the amount of flowers claimed for them. I always had to be contented with leaves. Was I too good to them?

Linaria cymballaria (Kenilworth ivy) with small flowers of a lilac hue. *Humulus Japonica variegata* (Japanese hop) is better adapted for climbing on the porch than in vases.

Rose geraniums if not attractive as a bloomer are much wanted for bouquet green and should occupy a place in the mixed border. Use solanum Cornucopia for single plants on the lawn or in the perennial border. Cockscombs (*Celosia cristata*) are beautiful bedders, and especially when mixed with such plants as *Centaurea candidissima* and *Cineraria maritima*, both having silver white foliage.

FOR MIXED BORDER OR MASSES.

For the mixed border or for massing in separate beds the following plants can be raised by every one that will take the trouble to sow the seed either in the house or in a hotbed, and if early flowers are not desired they can be sown in the open ground whenever wanted.

Godetias, calendulas, asters, coreopsis, *Nicotiana affinis*, browallia, cypress vine (doesn't like transplanting), cosmos, sweet peas (sow in the open ground), four o'clock, gaillardias, larkspur, marigold, ten weeks stocks, zinnias (the dwarf varieties, are very effective in masses or for bordering), sunflowers, scabios, poppies (sow in open ground), sanvitalia (fine for the rockery), portulaca (sow in open ground), pinks *Dianthus sinensis*, Drummond's phlox, balsams, bachelor buttons, *Centaurea cyanus* and snapdragons.

EFFECTIVE FOLIAGE.

Amarantus splendens and *tricolor*, *Ricinus Zanzibarensis*, a distinct class that surpasses in size and beauty all the other varieties *Nicotiana purpurea* and *colossea*. The latter makes a fine plant for single grouping on the lawn. *Musa ensete* (Abyssinian banana) should first be started in a hotbed. If grown to perfection its large leaves give a tropical appearance to the garden.

Caladium esculentum is fine as a single specimen or as a border for canna beds. Variegated corn and the red and yellow leaved Chilian beets are also effective for color in foliage.

CANNAS.

The plant that to-day both for its foliage and flowers, be it single or in masses, almost takes the lead as a bedder is the canna. Aside from the chrysanthemum, no other plant has been more glorified by the hybridizer in the last ten years than the canna, and still we keep guessing what will come next. The varieties we are growing foots up into the hundreds, but they have not all equal merits.

For massing I prefer Mme. Crozy, scarlet; Eg ndale, crimson flowers and dark foliage; and Florence Vaughan, yellow, all about the same height. They are good to propagate and easy to take care of during the winter. Other varieties of good merits are M. Alphonse Bouvier, scarlet; Midway, rich vermilion; Chicago, scarlet; J. D. Cabos, rich apricot; Queen Charlotte, scarlet with golden border; Sophie Buchner, vermilion; J. C. Vaughan, rose, dark foliage; Flamingo, crimson; Gustave Senneholz (Paul Marquant), deep salmon and Star of '91, scarlet, and the smallest of the type, making a splendid bed or border for the taller varieties.

BEGONIA SEMPERFLORENS.

Is another plant that has a future as a bedder. Its varieties are good bloomers and will grow in almost any position; they are easily propagated from seed and strong growers The best of them is atropurpurea (Vernon); it has bright red flowers and beautiful dark red foliage. Equally good and for certain purposes better is the dwarf form of Vernon called compacta.

ROSES.

Of roses that give good satisfaction as bedders there is none like the Polyantha class, flowering as they do all summer, and their dwarf habit is a great point gained in bedding roses. Some good varieties are Clothilde Soupert, both the white and pink forms, and Kaiserin Augusta Victoria, creamy white. Other free blooming bedders are Meteor, crimson, Hermosa, pink, and La France, rose.

FINE FOLIAGE PLANTS.

As foliage plants that can only be had by those who are fortunate to possess a conservatory, are acalyphas and crotons. Not enough praise can be given to these plants as bedders and it is to be hoped that they will occupy a prominent place in the garden of the future. Other foliage plants useful for border or for variety of foliage in vases, and easy to propagate, are the coleus, containing a number of varieties, of which the best dark one is Verschaffeltii. The iresines are also desirable for dark foliage in borders and ribbons. For light colors we have golden pyrethrum, *Gnaphalium margaritaceum* (antennaria), and variegated stevia.

CARPETING PLANTS.

There still remain all those plants that have occupied so prominent a place in our bedding of bygone days [Unfortunately these days are not yet bygone.—ED.] and are still used to a limited extent, and in geometrical gardening. I refer to the foliage plants used for carpet bedding. They include:

DARK FOLIAGE.

Alternanthera amabilis, and its variety *amœna*, *A. paronychioides*, and its variety *major*, and *A. versicolor*.

LIGHT COLORS.

Alternanthera aurea nana, yellow; *Leucophyton Brownii*, variegated thyme and sweet alyssum; *Salvia officinalis aurea*, *Santolina chamæcyparissus incana*, *Mesembryanthemum cordifolium variegatum*, *Othonna crassifolia*, *Sedum acre aureum*, *Sedum carneum variegatum*, and *Pilea repens*. Bulbous plants for the mixed border. Dahlias, gladiolus *Hyacinthus candicans*, tigridias, lilies, montbretias, tuberoses, *Lilium auratum*, *L. Brownii*, *superbum* and a host of others.

JAS. JENSEN.

Supt. Humboldt Park, Chicago.

HARDY PLANTS IN BLOOM MAY 11, '96.

Veronica gentianoides is one of the earliest of the speedwells to blossom; it is a low, dwarf plant with spikes of lavender colored flowers. There is another form of this plant which produces its flowers two or three weeks later.

The Asiatic globe flower (*Trollius*) makes a nice border plant, producing at this time many pale yellow globe-shaped blossom.

The Iceland poppies (*Papaver nudicaule*) in our rock-garden has naturalized itself. In an elevated open position they grow freely, but if there is any chance of water lodging around them the old plants rot off in the winter. They grow about fifteen inches high. Some of them have yellow flowers, others white or orange-red ones. They are very easily raised from seed and a few plants should be raised each year, *Dicentra* (*Dielytra*) *spectabilis* is one of the commonest and most graceful of herbaceous plants and is now in bloom. It is very hardy and free flowering, about two feet high and has handsome much divided foliage. Its flowers are rosy crimson, heart-shaped and produced in long, loose graceful clusters. It grows well in any ordinary good garden soil and almost in any situation. The golden alyssum (*Alyssum saxatile*) is covered with fragrant golden flowers. It makes a good border plant, but is most effective in the rock-garden in large masses. The dwarf creeping phloxes are completely covered with flowers. *Phlox subulata* (the moss pink) and its varieties have flowers varying in color from pinkish purple to pure white. This plant grows well on a dry sandy bank. *Phlox procumbens* is another dwarf plant with lilac-colored flowers, and *Phlox Stellaria* has lavender ones. These dwarf phloxes grow luxuriantly in light sandy soil and an open position.

One of the finest hardy pea flowered plants in bloom is *Orobus vernus*. It grows about fifteen inches high and produces a large quantity of flowers for the size of the plant. The flowers, purple and blue, are borne above the foliage on nodding stalks. The plant likes a deep rich soil, but grows equally well in a shaded position or one fully exposed to the sun. It is quite hardy and needs no protection. Another pea-flowered plant is *Lathyrus palustris*; its flowers resemble those of *Orobus*, but are not produced so plentifully, neither has the plant so compact a habit. *Polemonium reptans* is a dwarf native plant that has showy blue flowers. Its height is about eight inches and its flowers are borne in loose trusses. It thrives in an open position and a light rich soil.

Stellaria Holostea is a dwarf plant with a profusion of white star-shaped flowers. It grows very vigorously and if not kept within bounds soon covers up the dwarf plants in the border alongside of it. The Rocky Mountain columbine (*Aquilegia cœrulea*) is lovely now: so is *A Canadensis*.

The white snowdrop-like summer snowflake (*Leucojum æstivum*) is a bulbous plant that grows about fifteen inches high and has long, narrow, deep green leaves. The flowers, which rise above the foliage, are produced in small clusters at the ends of the stalks and are of a pure white color. Plant the bulbs in the fall, three or four inches deep, in good rich soil and in a slightly shaded position and they will produce annually afterwards their beautiful flowers.

Aubrietia deltoidea in the rock-garden clings closer to the ground and produces at this time small clusters of pretty purplish flowers. In a moist shady position the fine large white flowers of *Trillium grandiflorum* are much admired.

Under the shade of the native rhododendrons masses of the yellow-flowered native dog-tooth violet (*Erythonium Americanum*) grows and multiplies very freely in the peaty soil.

CLEMATIS JACKMANNI IN HUMBOLDT PARK CHICAGO

Partly shaded by an old hemlock a small bed of *Primula auriculata* produces annually its beautiful flowers in various shades.

The fragant blossoms of the lily of the valley are beginning to open. *Anemone sylvestris* is in full bloom. It is a dwarf plant and has beautiful large white flowers considering the size and height of the plant.

Iberis sempervirens is crowned with white, broad flat clusters of white flowers. This is a good plant in an open position where it will get plenty of light and in light soil.

The following violas are in bloom, namely: *V. pubescens, lutea, striata, Canadensis, blanda, palmata, Munbyana palmata* var. *cucullata* and *declinata*.

Erysimum pulchellum is well worth growing. It is a dwarf plant which grows nicely in the rock garden and it sows its seed, which germinates in the crevices of the rocks, and they make the best plants. It makes a good display now with its bright yellow flowers.

Cambridge, Mass. R. CAMERON.

SPRING FLOWERS, MAY 4, 1896.

Since my last notes of the 20th of April quite a lot of interesting spring flowers have made their appearance. We have got now in flower a choice lot of narcissus, tulips, hyacinths, anemones, fritillarias and crown imperials, and a host of other fine things. Among the finer narcissus in flower and which have opened their flowers since my last notes are Santa Maria, orange yellow with a nicely twisted perianth. Her Majesty, a lovely narcissus of dwarf habit with light yellow trumpets; Minnie Hume, a handsome large flower with pure white perianth and yellow cup; Emperor, one of the largest flowered narcissus we have in the garden and a beauty with its large deep yellow trumpet flowers, it and Sir Watkin are two of the largest and finest narcissus we have. All these opened on the 21st of April. *N. incomparabilis* Autocrat is another lovely flower, its trumpet is much expanded, and the color is a lovely shade of yellow. We have a nice showing of *N. Johnstoni*, Queen of Spain a fine variety which opened the 22nd of April, it has large clear yellow flowers. Conspicuus is one of the most showy narcissus we have, its flowers are large and of a clear yellow color, with the edge of cup orange scarlet. J. B. M. Camm is a very fine variety with broad white spreading perianth and yellow cup; it is called the queen of trumpets. The flowers of Maximus are yellow and of large size and the perianth is nicely twisted. These came into flower on the 23rd. Hume's Concolor has pure yellow flowers of good size. Moschatus of Haworth (the snow white N. of Spain) is a grand dwarf variety with pure white flowers and it makes a nice edging. It opened on the 23rd of April. Burbidgei has a white perianth and a cup edged with pink, it is a very pretty flower. Nelsoni Major, very large, perianth white, cup yellow, opened on the 25th; Abscissus, flowers yellow, opened on the 26th; General Murray, fine, large, perianth white, cup yellow, opened 28th; John Bain, large, perianth white, cup deep yellow, very showy, opened on the 28th; Vanessa is a small variety, but it has very pretty yellow flowers; Cynosure has a yellow perianth changing to white, the cup is faintly marked with scarlet; it is a nice variety and opened on the 28th; bicolor Grandee is truly a grand variety, its perianth is pure white and finely imbricated, the trumpet is very large and deep yellow; it opened on the 28th; Incomparabilis Magog is a large deep yellow flower. All of the above have flowered up to the 3rd of May and there are still a few varieties to come yet. We grow them in clumps of six bulbs each and by leaving them to stay there they soon form a large clump. Some of the clumps of six bulbs planted three and four years ago now bear from twenty to sixty flowers to a clump; we never lift any of them to dry them off and ripen them and one could not have better success than what we have had in the cottage garden here and all of the bulbs are equally good. We keep adding all the newer and choicer varieties of bulbs, and by doing this always have something new to look at every spring.

Amongst the choice tulips in flower one of the most conspicuous in the garden is Pottebakker scarlet, it is a lovely tulip with fine, bold flowers; it is fine for cutting. Orphanidea is a rather rare tulip with bright yellow flowers with a black center, it is a very pretty flower, and first opened on the 24th. Greigii is a very nice tulip, with beautiful y spotted leaves; its flowers are yellow to orange scarlet with black spotted center. Leichtlini (the coral tulip) is a lovely flower having the inside of the bloom white and the outside bright red. Sylvestris is also a grand species with sweet scented, graceful yellow flowers, it is one of the nicest tulips we have. It is sometimes called the water lily tulip; it opened its flowers the 3rd inst. There is still a lot of choice tulips to flower, although the garden is quite gay with the commoner sorts, these don't have so much interest in them as there is in the rarer ones.

THE HYACINTHS are at their best, but there is nothing new in them.

THE FRITILLARIAS opened their first flowers the 26th of April and oh, how lovely they are. *F. Meleagris* and its checkered varieties are very fine and such

a mass of different colors. They are well worth growing and quite hardy, but the loveliest one of them all is *F. aurea*, it has large golden yellow flowers; a clump of it in the border has flowered very fine. The crown imperials are in fine flower, crown upon crown, it is one of the first to flower.

Leucojum æstivum (the summer snowflake) is in nice flower, its large long stemmed drooping flowers are nice for cutting. It is also pretty as a border plant.

What a lovely showing *Sanguinaria Canadensis* (the blood root) is making! although quite plentiful in the woods here a few plants in the garden don't go amiss and we regard it one of the nicest little flowers we have.

The first of the iris to flower is the pretty little dwarf variety, *Iris cristata*, it makes a nice edging to beds or borders and is quite hardy here.

The first anemones to bloom were the single poppy varieties, but it will be ten days or more before we have the best of them in flower. All the varieties we have planted have proved quite hardy, although I did not think they would be.

Anemone ranunculoides and Persian ranunculus potted up in the early part of March and planted out in April are now in full flower. This was tried to see if they would do well, and they seem to flower quite freely.

The daisies and forget-me nots are quite bright, the violets are beginning to show their flowers. *V. cornuta* in frames is giving plenty of flower and the polyanthuses and primroses sown last spring are now beginning to flower.

DAVID FRASER.

Mountain Side Farm, Mahwah, N. J.

ASPARAGUS VERTICILLATUS.

I got *Asparagus verticillatus* last year: it came near being smothered by adjoining plants. Last May frost cut it to the ground and I thought it was killed, but one plant it seems lived, for I found it this spring. I did not see it at all last summer. I want to put a stake to it now. How tall does it grow? Shall I put a branched stake? That is will it become somewhat bushy at top? C. W.

Northern Illinois.

On well drained ground and with some earth or coal ashes heaped over the crowns in winter they should survive fairly well; like all asparagus it is perfectly herbaceous, that is the old stems die down to the ground every fall. To begin with a long, straight pole, say a pole, say a bean pole, will suffice. It isn't a very branching species.

PLANTS FOR AN ARCH.

T. N., Morris, Ill., writes: Kindly tell me what would be the best climber to cover a small arch 10 inches wide and about 6 feet high, and how many, one or two? Guess I would have to get two anyway for immediate effect."

Ans. We wish you had been more definite, for instance where and how is the arch situated? Do you want a hardy or a tender vine, an annual or a perennial one, and is the span of the arch only ten inches wide, or is the frame ten inches wide, and the arch some feet across? We will assume that the frame is ten inches wide and the arch 6 feet high, with a span of 4 to 6 feet wide If you want an annual vine maurandia should answer, *Lophospermum scandens* and cobæa would cover it but run too far; the variegated Japanese hop would answer nicely.

CYPRIPEDIUM SPECTABILE.

As a tender vine that will grow well and stand well in summer *Ipomœa Leari* should answer very well, but would likely give some trouble keeping it from sprawling all over the ground. But a good big tuber of *Ipomœa paniculata* planted at each end should cover that arch nicely in a summer, and when fall comes you may dig up the tubers and store them in a frost-proof cellar as you would dahlia roots till planting time again next May. *Rosa Wichuraiana* led over that arch would look very pretty, but would have to be cut into check when it wandered away too far. Among the common vines Hall's Japanese honeysuckle and the golden netted honeysuckle are quite appropriate. No matter what plant is used, set out enough of it for immediate effect, for it is easier to cut out a surplus, than add to the filling after hot, dry weather sets in, two plants will be few enough.

PLANTS FOR EXPOSED BORDER.

I have a strip of ground about 3 feet by 50 feet on the north side of my house that is shaded all day long. For three successive years I have tried to grow pansies on it but have failed, owing to the peculiar situation of my place, which is high and greatly exposed to the west wind and a strong draught at this spot. Do you know of a low growing flowering plant, either annual or perennial, that would grow and thrive in this position?

Amsterdam, N. Y. W. McC.

It is an unfavorable place for anything, not so much on account of the shade as because of the open exposure to wind and draught. First dig the poor ground out deep and replace it with rich earth. Devise some means of checking the winds and draughts, an arbor vitæ evergreen hedge or a common privet deciduous one might help you to do this. With the ground good and deep and the wind broken you could grow the several funkias there, also many ferns, trilliums, lilies and other bulbous plants; but if left unprotected common periwinkle might cover the ground, or you could have a mass of golden-netted, or green-leaved Japan honeysuckle cover it, using a rail or some stumps to let it clamber over. And there would be lots of little places about it in which you might plant bulbous plants.

PLANTS FOR CEMETERY.

A western subscriber asks: "What kind of a plant would do well on the west side of a monument? I think cannas, say Madame Crozy, would look nice, but am afraid it will be too hot for them, as the ground is sand and gravel, but filled in with good dirt for the plants."

Ans. If the land is poor and dry and the location very hot in summer, and you have no adequate means of watering your plants there, cannas won't grow well with you; in fact, nothing will. Better try acalyphas of sorts, with *Vinca rosea alba* and globe amaranths. But better still, use a deep, wide bed of good soil, and make provision for a flood of water there, then you can grow lots of things there.

GARDEN LILIES AND MANURE.—G A. G., N. J., asks: "How do you fertilize them? I was informed that manure placed on the surface of the beds will kill the bulbs, is this so? I gave my lily beds a top-dressing of sheep and cow manure that had been piled up and rotted together for a year. Do you think they will survive it?" *Ans.* Indeed we do, and be very grateful to you for your generous attention. Topdressing is the proper way to manure lily beds. In making a lily bed if a good deal of manure has been mixed into the soil, and the bulbs come into direct contact with this manure it is apt to provoke decay in the bulbs, but if the manure doesn't touch the bulbs directly, no harm is apt to ensue.

TRUMPET CREEPER ON CLOTHES POSTS. I would suggest to those who plant trumpet creeper by clothes posts to use twisted wire clothes lines which can be left out and are very satisfactory, as I know by some eight year's experience.

Madison, Conn. F. C. D.

CYPRIPEDIUM ACAULE

Orchids.

FORCING HARDY ORCHIDS.

By this we mean growing some of the hardy native orchids in pots or flats so as to have them come into bloom in the house or greenhouse some weeks or months earlier than they would bloom out of doors. Among our hardy ones the cypripediums or lady's slipper orchids are not only the most attractive for our purpose but also the easiest grown The best kinds to grow are *spectabile*, *acaule*, *pubescens* and *parviflorum*; we have also grown *arietinum* and *candidum* as pot plants, but they do not make show enough to justify us in forcing them. Of the first four *spectabile* is the boldest and prettiest, and it forces well; indeed, if kept growing after its flowers fade and are past, the same plants will bloom in pots or boxes year after year. The same is true of the yellow-flowered ones, *pubescens* and *parviflorum*, while *acaule* is very beautiful as a pot plant, it seems to fail completely after the second year, but fortunately it is our most abundant species, hence we can recuperate our stock every year from the woods. Our illustrations from the *American Florist* show a panful of *spectabile* and another of *acaule* as grown at the Bussey Institute. And apropos of them we read:

"*Cypripedium spectabile* is usually found in our northern swamps in limited quantities. For collecting the roots from the native haunts, early September, just as the leaves are turning yellow, is the best time. Select suitable roots with strong, flowering pips.

"In their native haunts both *Cypripedium spectabile* and *pubescens* are comparatively surface rooters, their matty roots seldom reaching six inches below the surface in a light peaty soil. This should be borne in mind in potting them up, which should be done as soon as the clumps are received from the woods. Have the soil light with plenty of leaf mould and old peat and make the drainage very good. The clumps can be crowded in the pans quite thickly, care being taken not to cover the crowns too deep with soil or they are apt to rot. After potting they should be top-dressed with a thin layer of sphagnum moss and after a good watering should be placed in a cold frame to remain until they are brought into a temperature of about 55°, not earlier than January 1, and the later the better.

"The crowns will sometimes take 3 to 4 weeks before they show signs of starting, but after growth begins it is very rapid. If possible place them then in a cooler temperature where the growth will get hard and the flowers be allowed to develop slowly. As soon as the flower buds commence to appear carefully avoid excess of moisture, as the flowers are sensitive to injury from moisture. The plants are heavy drinkers and yet the young growth is sensitive to rot, so extremes must be avoided.

"From 10 to 11 weeks is the time required to bloom the plants from the time they are brought into heat, and after they have passed out of bloom they should be grown on carefully for the succeeding season, when they will do equally well for three or four years to come. This is also true of *Cypripedium pubescens*, which is the easiest of all our native cypripediums to grow under cultivation. About 8 weeks is sufficient time to bloom this species and from 6 to 7 weeks for *C. acaule*. The latter should be collected new every fall, as it is extremely hard to carry it over from year to year. All the above plants, dying down every fall and making a distinct crown (like the lily of the valley)."

ORCHIDS.

Attention is now in order for the welfare of lælias that have now gone through a season of long rest; nothing would have been gained by attempting an early start. About now they will push vigorously and respond kindly to any little attention you can give them by way of repotting, plenty of heat and moisture, and at the same time plenty of light and fresh air. A very little shading of the glass is required. When growth is half completed, which should be by the latter part of June, you cannot give them too much water early in the morning; then again at a convenient time through the day, and again from 7 to 9 at night. I think this late watering is more conducive to their successful culture than at any other time. The floor should never be dry during their season of growth.

The grower who has not had time to go through his orchid stock should now be on the alert; no time should be lost in going carefully over all the collection and if any be found not in the proper sized pots they should have immediate attention. The Cypripedium family should either be top dressed with nice short live sphagnum or repotted, as their condition requires. I do not advocate too often repotting them, neither do I believe in too often dividing them, even for a commercial house, for almost any buyer would prefer a good sized plant, and pay the value of it than purchase a small weak piece that will take years to bring into a flowering state This interesting family of orchids enjoys plenty of heat and moisture, and revels in a plenty of atmospheric moisture. Never let them dry up in the summer time; grow them in slight shade, and give them plenty of atmospheric moisture, and do not let the house run down too cold at night or at any time, especially when they are growing rapidly, which they will do if cared for as above.

Orchids are now no longer the mysterious and hard subjects to handle that many of our old gardener friends would have us believe. Neither are they the uncommercial quality that many modern florists would have us think and have been wont to rate them; to prove this you need go no further than visit many of the leading florists' stores in this country, and who, by the way, do not consider a choice decoration complete without a liberal use of orchid bloom. Many years ago our old friend B. S. Williams of orchid manual fame pointedly referred to the sad havoc made by foolish and unscrupulous collectors, who gathered so many plants out of proper season and without careful management, succeeded only in bringing home a lot of half dead and half ripened plants that were fit for only a quick relegation to the rubbish heap. I am afraid that with all those severe lessons and wholesale disappointments they have not yet heeded them, but are continually bringing home in a half dead condition thousands of lovely types of the many beautiful genera to be found, and yet the continual howl of those who are "principals" in this "unholy" work is an effort to try to make us growers believe that many of the best and most useful kinds are fast becoming extinct. There is no doubt that very heavy hauls have been made on many of the best and most serviceable kinds, but I believe there are large quantities yet to be had, and no doubt they can be brought here in good condition if proper precautions are used in their collection and transportation. I have on a few occasions had cases sent me packed in such a way that I would not venture to ship them 1,000 miles by rail, let alone ship them from 3,000 to 6,000 miles by boat and steamer; the plants were apparently in good condition when packed, but as they were packed like sardines in a box, with nothing but dusty, musty shavings about them, and nailed in a tight box, with no provision for airing. To my way of thinking this way of doing things was a discreditable and slip-shod way of handling such valuable stock.

WM. MATHEWS

Utica, N. Y., May 12, '96.

GARDENING

WILLIAM FALCONER, Editor.

PUBLISHED THE 1ST AND 15TH OF EACH MONTH

— BY —

THE GARDENING COMPANY,

Monon Building, CHICAGO.

Subscription Price, $2.00 a Year—24 Numbers. Advertising rates on application.

Entered at Chicago postoffice as second-class matter.

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All communications relating to subscriptions, advertisements and other business matters should be addressed to The Gardening Company, Monon Building, Chicago, and all matters pertaining to the editorial department of the paper should be addressed to the Editor of GARDENING, Schenley Park, Pittsburg, Pa.

GARDENING is gotten up for its readers and in their interest, and it behooves you, one and all, to make it interesting. If it does not exactly suit your case, please write and tell us what you want. It is our desire to help you.

ASK ANY QUESTIONS you please about plants, flowers, fruits, vegetables or other practical gardening matters. We will take pleasure in answering them.

SEND US NOTES of your experience in gardening in any line; tell us of your successes that others may be enlightened and encouraged, and of your failures, perhaps we can help you.

SEND US PHOTOGRAPHS OR SKETCHES of you flowers, gardens, greenhouses, fruits, vegetables, or horticultural appliances that we may have them engraved for GARDENING.

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A VARIEGATED CUCUMBER.—One half of it being green, the other half of it yellow, is another freak in the vegetable line reported from England. It is odd, to be sure, but a something we have no need for and don't want to perpetuate. We had variegated potatoes once upon a time, but where are they now?

FORSYTHIAS.—A German correspondent of a transatlantic contemporary says "There are really two species of *Forsythia* namely *F. viridissima* and *F. suspensa*." But we are inclined to believe that he is a good deal more technical than practical. Let him raise a batch of seedlings from seed of *F. viridissima* and tell us what he gets; if he doesn't find *suspensa*, *Fortunei*, and *Sieboldii* all in the same batch his experience will be different from ours.

WEEDS IN THE LAWN.—No matter how expansive your lawn is, how smooth is its grade, or how thick a coat of grass you have in it, unless it is clean and free from weeds it will present a shabby appearpearance. Pull out or cut out docks, ox eye daisies, plantain, and the like. Roll your lawn to keep it smooth, mow it about once a week if the grass is growing rankly, and always rake off the roughest of the mowings.

BUSH HONEYSUCKLE.—In answer to Mrs. E. R. B., the little twigs of shrub stuck into a potato and sent in tin can are of the Tartarian bush honeysuckle which is among our commonest hardy shrubs. If there is no other bush of the kind in your town there is room for a good deal of missionary work among your neighbors. They may be propagated from seed sown as soon as ripe, or from cuttings of ripe wood, or from layers.

A DWARF FORM OF THE CEDAR OF LEBANON.—The *Gardeners' Chronicle* tells us about a dwarf variety of this cedar that is growing in an old English garden. The plant in question is about 4 feet high and as much in diameter, of dense build and well supplied with healthy foliage of normal size. No perceptible difference in the size of the tree has been observed since eighteen years. These dwarfs like the dwarf white and dwarf Scotch pines and dwarf Norway spruce are interesting and serve a certain purpose in our plantings, but at best they are simply freaks.

GARDEN PICTURES.—We have seen a good many pictures of gardens lately, that is sketches showing us what good effects can be obtained by artificial means; the artist did his level best to produce on paper what he thought would be just perfection on land. But they made our heart sore, they were simply ridiculous and finicky. The actual picture as it exists in the garden is incomparably superior to the most subtle creations of the mind and pencil, not drawn from life. And this is what gave the Dosoris pictures that beauty and happy charm no artificial drawing could show or inspire.

POET'S NARCISSUS.—"See here what I have brought you," remarked a friend the other day as he walked into our office at the Park and placed a big paper parcel in our hands. It was a sheaf of these lovely, fragrant, white blossoms,—oh how sweet! And of all the narcissus kind this is the commonest and easiest to grow, and it is hardy as a rock. Still in this broad park of most five hundred acres there is not one bulb of it! Coming from Dosoris, a land, which, so far as narcissus and other flowers are concerned, "floweth with milk and honey" that bouquet of floral beauties stung us with mortification, as well as gave us pleasure. But we shall have them in plenty next year. And let us advise you, don't you be without them either, for they are among the cheapest of bulbs as well as the hardiest and most permanent.

BAD TASTE.—The *Gardeners' Chronicle* says: "In the Paris florists' shops, and lately in our own, araucarias in pots, pans of hyacinths and tulips, and what not, are 'decorated' with huge bows of colored ribbon. Though the bows are tied by the deft hands of French women, who enjoy a monopoly in this respect, and though the colors are fairly well assorted, yet the general appearance to the of flowers is so repulsive that we trust this fashion will be evanescent. We regret, however, to find that the practice is gaining ground in America." Yes, there is a good deal of truth in this, but there is also much consolation, we all know that the big ribbon means "shop" or a bought bouquet. Home grown flowers need no dry goods store to help emphasize their beauty; and those who grow them can usually arrange the flowers to look sweet enough without ribbons.

THE FLOWERING DOGWOOD (*Cornus florida*), is the showiest tree in our woods to day (first week of May), and we have none more beautiful in our garden. It is abundant and in splendid blossom in the immense ravines in Schenley Park, even in the shade of big trees, but we haven't enough of it, and I have resolved to add to it in large quantity. Now is the time to study our woods and ravines; the oaks, beeches, hickories, and other big trees are yet leafless and to the undergrowth belongs the task of rendering the landscape bright and gay, so now is the time to decide where wild plum, wild crab, thorns, redbud and dogwood can be set out so as to render the landscape the prettiest and gayest at this time of year. But the mission of these trees does not end in spring, they all, especially the dogwood, have beautifully tinted leaves in fall, and, except the redbud, a crop of ornamental fruit.

ENTHUSIASM LEADS TO SUCCESS.—In a note accompanying his notes (page 261) Mr. Fraser writes: "I wish you were here just now to see our cottage garden. I must say it is the finest sight of spring flowers I ever saw. Talk about narcissus, we have them here to perfection; one could not wish for them any better, and such a variety or them! But I enclose some notes about the best of them, to note them all would take up a whole number of GARDENING. Our Sir Watkins are extra fine. I think this is the most showy narcissus one can grow. Its large flowers must be about four inches across; the Emperor comes close after it, it also is a nice variety. The *Eremurus robustus*, which I spoke to you about as proving quite hardy, is now showing flower. I hope the plants will come all right as I would like to see them in bloom. Our Oncocyclus iris are to flower. *Susiana* will be in flower soon and *Lortetii* is showing nice and strong. Our tulips are in fine shape, but I have only made notes of the choicest of them. In the hyacinth line the garden is one mass of them."

"THE TRIALS OF THE EDITOR."—A correspondent in Rapidan, Minnesota, who has just received a sample copy of GARDENING sends us a very simple but long drawn inquiry about a very common shrub, and asks us to "credit me with its value. * * If you cannot use the MSS. please return it to me, as I may be able to make use of it elsewhere. I fully realize the trials of the editor who is expected to use *everything* that comes to him for publication."

Ans. Now don't you lose any sleep over the trials of the editor of GARDENING especially as regards what he is "expected" to use in this journal. The subscribers to GARDENING ask questions because answers to these queries are valuable information to them, and instead of asking us to pay them for asking us the questions, they pay us—they buy the paper—for our replies, believing that they are getting full value for their money. GARDENING has no occasion to sit down and manufacture queries nor pay others for asking them, and if you had seen a little more of it you would never have made such a glaring mistake.

NO SPRING FLOWERS.—Suppose that you love flowers, and know them, and have all your lifetime been brought up among them, and had gathered around you an almost endless variety of them, and that they prospered amazingly under your hands; you couldn't help admiring them, and loving them, and being happy among them. But it is not till you become separated from them that you can appreciate how much you really loved them; how lonely you can be without them, how inseparable they are from your being, and how you again ache for their society. From Dosoris to Schenley, this is our feeling exactly. All the gorgeous thousands of tulips and hyacinths that fill our flower beds can never compensate for the host of vernal beauties we left at Glen Cove; but we are determined this shall not continue, and that next spring shall again find us rolling in the lap of Flora's many treasures.—We are now noting the absentees and reaching out after them. No bold, big, stiff bed of Dutch bulbs of any kind can ever compare with a well-filled rockery or border teeming with the scores of little vernal beauties now in their jewelled glory. Go thou and do likewise.

LAWN MOWINGS—WHAT ARE THEY GOOD FOR?—If gathered fresh and given to pigs or sheep these animals will eat them, if cut by the scythe cows will eat the grass but if cut by an oily machine cows don't like it. If the mowings are at all wilted don't feed them to either cows or horses, for these animals the mowings should be either quite fresh, or quite dry. Grass mowings are a good mulching to place over the roots of currant and raspberry bushes, grape vines, and other vigorous shrubs, young trees and plants, and to a certain degree over plants generally, but you must use a good deal of discretion. While the grass mulching may keep the earth cool and conserve moisture, when it is used green and heavy it is apt to form a dense leather-like mat almost impervious to air, hence not very desirable for fine rooted plants. In moderation, however, it is good for mulching most anything. Its manurial virtue is very little, and this is best secured when the grass is thrown into the hogpens, when thrown into a heap outside to rot it is apt to heat and be rendered of little worth, but dumped out among other rubbish in the rot pile it adds considerably to the humous deposit. In the case of ordinary sized lawns, however, the clippings we get from them are so small that saving them is hardly worth considering, aside from an article for mulching.

BE HONEST AND PROMPT.

One of our western readers writes: "What ails the business honor and integrity of some of the eastern nurserymen? Early in February I sent an order to —— —— for one *Clematis brevicordata*, the result of an answer to an inquiry in GARDENING regarding it. There was one perennial in the order also. I enclosed my check with the order, paying $1 for the clematis, and requested shipment April 15. Lately, without any other information, I received a letter from them, saying "we have shipped *Clematis paniculata* instead of *C. brevicordata*." Along came two plants of *Clematis paniculata*, and express charges of 70 cents. As I have seven old plants of *C. paniculata* on my place and eight young plants in my surplus bed, and only ordered the *C. brevicordata* to grow and know it, you can imagine my disgust. They had two months in which to notify me that they did not have what I ordered. Why didn't they send me some started cabbage plants?

"In February I ordered four *Vitis Coignetiæ* and two field grown *Rubus sorbifolia*, remitting with the order requesting shipment April 15. The check sent has been used, as I find it in my checks returned at the bank. I can't get them either to ship or return the money.

"In strong contrast is a letter I received to-day from John Saul, Washington, D. C., from whom I bought a large *Hydrangea Otaksa*. He wrote to inquire if he had sent me an injured plant, as for the first time in years he found his hydrangeas injured in the cold frame, the injury not showing at the time of shipment. If the plant was injured he wants to make it good."

[Dear old John Saul—he is and always has been the soul of honor. We cannot excuse the other firms. In the case of the last one referred to, however, we may say they have no dishonest intention at all, far from it; one of these days they will probably write you a long apologetic letter to compensate you for the long delay and annoyance they have caused you. They are slow in their office work. But jog their memory.—ED.]

ANDREW S. FULLER.

Andrew S. Fuller is dead. It was a cruel flash of electricity that heralded this sad intelligence throughout the world on May 6. It will cause many a pang of sorrow and regret, not only to personal acquaintances, where to know him was to love him, but to friends his writings and correspondence had made. His genial, kindly nature pervaded his every action, and he made warm loving friendships even among those who never had the pleasure of meeting him personally. The pleasure of others was always uppermost in his heart. At his beautiful home in Ridgewood, N. J., he had gathered all the plants that would thrive in his soil and climate, and cultivated and studied them intelligently, not forgetting the useful in his admiration for the beautiful. He set aside a plot of ground in which he put his surplus plants and grew and cared for them that he might always have stock to send to his friends. Any one could go and help himself. When strangers or friends wrote him for information regarding any plant the chances were that not only was the desired information obtained but the plant in question sent. Mr. Fuller was not a man of theories, but of facts. When his publishers desired him to write a book on garden fruits he replied, "Yes, if you will let me write for those who have never seen a strawberry, raspberry or currant plant." Obtaining that permission he filled his garden with all the varieties, grew them, made his notes, originated the term now in use of "small fruits" as referring to the strawberry, etc., in contradistinction to larger apples- pears, etc., and in his writings detailed all the stages of development from the seed to maturity. He had the unusual gift of conveying to his readers in simple language the ideas he desired to express, and his works stand to-day as the leading authority on the subjects treated.

Mr. Fuller was entirely a self-made man. Starting active life as a carpenter in Milwaukee, Wis., his natural taste for horticulture changed the current of his life and in time he became foreman for a prominent eastern nursery. For quite a number of years past he was editor of the horticultural department of the *Weekly New York Sun* and has also edited *Practical Forestry*, *The Strawberry Culturist*, and several other similar works.

An honest loving soul has gone. He loved nature in all her moods. He wooed and won from her many of her mysteries. He was all heart, always doing for others, loving all things animate and inanimate. Unselfish, generous to a fault, a man among men, one that has left this world brighter and purer by his presence in it.

Highland Park, Ill. W. C. EGAN.

The Greenhouse.

OTAHEITE ORANGE AS A HOUSE PLANT.

I never have received so much pleasure from any house plant as I have from an Otaheite orange, which I bought two years ago, thanks quite considerably to your generous response to inquiries in GARDENING and Mr. G. Drobisch. Now I would like to ask a little more. I don't want my tree to stop doing well. It is in the same pot (an 11-inch one) as it has been in since I received it; and I am inclined to think I should put it into a larger one, although it looks very thrifty now. I have given it a little fertilizer during the last two months, fine ground bone and some Bowker's food in water, but will it not require more root room and fresh soil soon? is what I would like to know. F. C. D.

Madison, Conn.

An 11-inch pot is a pretty big one and should hold a pretty big Otaheite orange plant. Examine the plant and see if the roots are good and the drainage clean; if the roots are potbound by all means repot the plant or use a small tub for it, but if it is not potbound then have the drainage seen to, pick out any earthworms that may have got into the soil, and pick out all the loose top soil you can remove easily without hurting the roots, and replace it with rich loam mixed with leaf soil and a sprinkling of bone meal. Pot very firmly.

IXIAS—HOW I GROW THEM.

For the past two winters we have grown a lot of these South African bulbs in a cool greenhouse, and they have proved eminently satisfactory, producing beautiful flowers of many shades on slender stems. The leaves are long, narrow and grass-like. I pot the bulbs in October, putting eight or ten of them into a 6-inch pot, using a compost of sand, loam and leaf-soil, and potting firmly. The pots are then placed in a cool, shady place and watered only very moderately; after their flower buds appear give a little more water. After blooming give them water and keep them growing as long as the leaves will stay green, but when they begin to get yellow give no more water, then lay the pots on their sides under the bench or elsewhere and keep quite dry till autumn, when the earth should be turned out of them and the bulbs picked up and repotted after the manner of the previous year.

WM. MCROBERT.

Cambridge, Mass.

WON'T TURN THE PLANTS IN THE CONSERVATORY.—A N. J. reader has a conservatory, but is afraid to turn the plants around in it lest when by reason of long standing they assume a one-sided position

the turning enervates them; as it would take so much of their strength to move back again to the light. *Ans.* Now don't bother about any such notions as this. By all means turn your plants around to the light so as to preserve their symmetrical even forms, but never wait so long before doing it as to allow the plants to become one-sided, turn them before they show this inclination.

Roses.

HYBRIDS OF ROSA RUGOSA.—Professors Budd and Hansen of the Ames, Iowa, Experiment Station crossed some flowers of the Russian form of *Rosa rugosa* with the pollen of a number of the best garden roses. According to their bulletin 32 "This crossing was done in the summer of '92, and the seed planted the following spring. In the fall of '93 the plants were potted and wintered in the cellar. The following spring they were planted out in nursery rows where they now stand. In the fall of '94 the tops were cut back to mere stubs, which were covered with earth. During the past season ('95) they have made a rampant growth which has been untavorable for the blossoming of such young plants. As a rule, the hybrids showing most variation from the *Rosa rugosa* mother have not bloomed, while those following more nearly the mother in leaf and habit have given more bloom.

"Among the many seedlings, one of which the staminate parent was General Jacqueminot, is a rampant grower, with many branches. It is less thorny, and its leaves are thicker, more leathery and glossy than those of either parent. So far it seems to be a model of health, and able to endure the extremes of summer heat and drouth. * * * Other hybrids have blossomed that show the beautiful color of Gen. Jacqueminot, Duchesse de Brabant and other choice varieties which show a tendency to doubling; and the other plants not yet in bloom indicate their hybrid character in color of wood and modified foliage. * * * The Russian *Rosa rugosa* now known as *R. rugosa* var. *Regeliana* is far handsomer in habit, in leaf and color of flower, and is hardier and much better able to endure drouth than the Japan type."

OUR IOWA FRIENDS are on the right track. The hardy plants from Japan are very beautiful, but we find that most of them are surface rooting and must have considerable moisture in summer. What we need most is a hardy race that will endure the drouths of our parching summers, and if the good people of Iowa can help us in this respect they will do us very great service.

THREE COMMON ROSES.—E. A. G., Tremont, N. Y., wants three common roses, one a pink, one a white, and one a red. *Ans.* Get Mr. John Laing, pink; Madame Plantier, white; and General Jacqueminot, scarlet-crimson.

Aquatics.

SOWING NYMPHAEA SEED.

A reader sowed some seed of nymphæas in pots, then submerged the pots in a tank of water, but the seeds soon rose to the surface and floated about on the water, so he asks us if the seed was good, or if his treatment of it was a mistake. Mr. Bisset of Twin Oaks, Washington, an experienced nymphæa-grower, kindly answers as follows:

"As there is a great difference in the time required to germinate the seed of tender and hardy varieties of nymphæas it would be hard for me to say whether his seed was good or not, not knowing the varieties he sowed. If the seed was of the Zanzibarensis varieties, and kept at a temperature of from 70° to 80° they should have germinated in 10 days; the same may be said of all tender varieties of nymphæa of which seed is generally offered. But hardy nymphæas require from 30 to 40 days to germinate if kept in the above temperature. Of course if the seed is subjected to a lower temperature it will take a corresponding longer time to germinate. As to the seed floating around after being submerged, that is what always happens when the pot is submerged immediately after sowing. The proper way to sow nymphæa seed is to leave the soil about one inch from the rim of pot or pan; after sowing the seed the pot should be submerged to within half an inch of the rim this will give half an inch of water over the seed. The seed will float around on the surface for several hours, but will eventually sink when soaked through. Then the pot can be submerged so that it will be completely covered with water, having from one to one and a half inches of water over the seed."

Washington, D. C. P. BISSET.

The Vegetable Garden.

THE HARLEQUIN CABBAGE BUG.

I mail to you in a tin box to-day a male and female "terrapin bug"; under this name they are known here. They have been known in this county about 3 or 4 years, but this spring is their first unwelcome visit to my garden. As a consequence my early cauliflowers and early cabbage planted out the first of the month (April) are now no more. Are they known north? And what will kill them? I gave them repeated dustings of slug-shot and one spraying of London Purple, but results rather unsatisfactory. People here claim there are no remedies for them. E. O. N.

Tracy City, Tenn.

The insect of which examples are sent is generally known as the "harlequin cabbage-bug," the name having been given it in consideration of its motley markings in blotches and bars of red and black. For the same reason it has been called in some localities "the calico back." The name of "terrapin bug" is new to us. Scientifically it is *Murgantia histrionicæ*.

It is a southern insect, perhaps native to Central America. It was first heard of many years ago in Mexico. About the year 1860 it entered Texas, and from that time we have been able to trace its progress steadily northward over many of the states of the Union. As long ago as 1880 specimens of it were received by me from Tennessee. Since then it has been moving northward and eastward, through Virginia, Maryland and New Jersey, until last year (1895), when members of the advance guard were discovered on Long Island, state of New York. Without much doubt it will, ere long, invade the eastern states and Canada.

Wherever it occurs in large numbers, which it is not slow in doing from the rapid multiplication of its several annual broods, and almost entire immunity from parasites and other enemies, it becomes exceedingly destructive to the cabbage crop. As it is a true bug, it takes its food by suction through the beak, and can not therefore be killed by the arsenites. Its peculiar structure renders it extremely difficult to reach by the ordinary "contact insecticides."

Our best remedies are therefore to be found in baiting the first brood of the year, or better, the hibernating individuals if possible, with some favorite food upon which they may be destroyed. Professor Webster has recommended, to this end, placing the old cabbage stumps and leaves in piles about the fields in the autumn in order to induce the bugs to take refuge among them for winter protection, and in the early spring to burn or char the piles so as to kill all the bugs. Also, to plant out early a large number of cabbage stumps, and as soon as the bugs have been drawn to the young growth, to kill them with kerosene.

Mr. H. E. Weed of the Mississippi Experiment Station has suggested an excellent remedy, which is that a row of mustard or radish plants be run on the sides or through the middle of the cabbage patch or field, and when the bugs have been drawn to them in preference to the cabbage, to kill them with a heavy spray of kerosene.

They may also be trapped with cabbage leaves spread on the ground, where they will gather on cold nights, and may easily be killed in the morning. Children might search for the eggs upon the leaves and crush them by hand. The prettily-banded eggs are conspicuous objects, standing on end, often in double rows, and are readily found. J. A. LINTNER.

Office of N. Y. State Entomologist, Capital, Albany.

A BIG CROP OF MUSHROOMS.—I picked 10 lbs 6 oz of mushrooms yesterday (May 3), weighing them after the stems were cut off. Don't you think that was a good day's cut from a bed 23 feet long by 4 ft. wide? This bed is in a cool cellar and has been in bearing since the 15th of February, and plenty of mushrooms are yet showing. The night temperature of the house now is 46°. [It is not only a good crop, but a most extraordinary one, and we hope you will tell our readers all about how you made up that bed and otherwise took care of it.—ED.] DAVID FRASER.

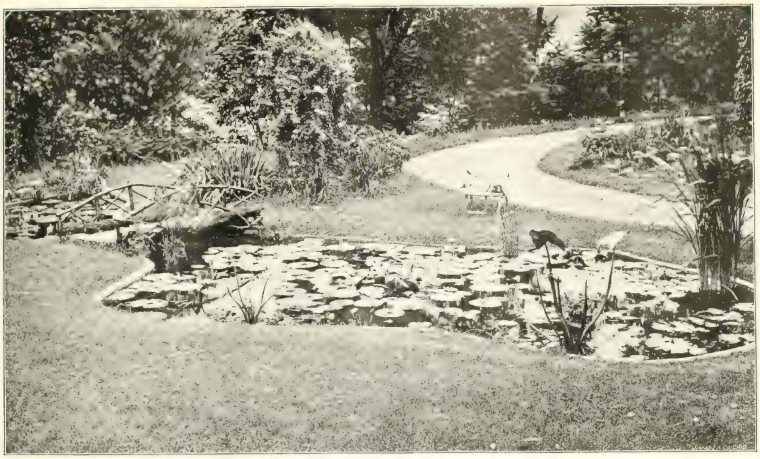
The Fruit Garden.

PEARS FOR NEW MEXICO.

What are the best winter pears (late keepers) to plant for market? We have here an ideal pear soil and climate, with plenty of water. I have always regarded Chamontel as the winter pear *par excellence*, but find none offered in the catalogues in this country. I see Winter Nelis and Acme quoted at high prices in February and March. Kindly advise me which sorts to plant. I have about 80 acres altogether set apart for pears, and mean to plant this autumn, choosing best winter pears only. E. McQ. G.

Croftonhill, N. M.

Replying to the enclosed inquiry, we should name as best winter pears the Anjou, Winter Nelis, Josephine of Malines, Barry, Columbia, Dorset and Duhumel du Monceau. The Anjou, Winter Nelis and Barry are recognized now as the



A SMALL POND OF AQUATICS

leading winter pears in the New York market. The other varieties are hardly known but still are valuable and should be included in the collection. Dorset and Columbia we think are particularly valuable for market on account of size and beauty, although they are not high flavored. We think that the list above named includes all the desirable sorts.

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Rochester, N. Y.

Miscellaneous.

FLOWER GARDEN NOTES.

Roses promise a rich display. The plants in the rose garden at the White House never looked so fine as they do at present. The Crimson Rambler promises to be in bloom first of all and it looks as if the gorgeous pictures in the catalogues were really taken from life. *R. Wichuraiana* is spreading over everything, the beautiful green foliage is alone enough to make this rose a favorite. The Indian azaleas are at present quite a feature in the shrubbery. Nearly all of the kinds have been tried first and last, and lots of them have proved too tender to be left out during the winter. This is especially the case with the large doubled flowered sorts, the best of the lot is the old *A. indica alba*. It thrives here in Washington just as well out as indoors. [And so it does at Dosoris.—ED.] The way these azaleas are treated may be of interest to those who want to try them. The ground is made up of leaf mould, sand and loam in equal parts, to the depth of about a foot; the plants are then put out early in the spring so that they may be well established before hot weather sets in. After planting the ground is never dug, instead a mulch of leaves is given each fall and enough sand thrown over to keep them from being blown away. In dry summers they are watered or else the ground should be covered with some material to present a too rapid evaporation.

There is a scarcity of bloom among the shrubs this year, even the snowballs are not so well furnished as they usually are. On the other hand "golden chain" (*Cytisus Laburnum*) which is usually a shy bloomer here has an abundant crop of flowers.

The Moutan or tree pæonies, although lasting but a short while, are a whole show in themselves for the time being. By the way there are evidently a greater number of names than there are of varieties of this plant; last summer we got in the neighborhood of 40 different named plants but out of that number there are not over 10 distinct forms. The Chinese herbaceous kinds are just swelling their buds; *P. arietina* and *P. triternata* are getting past their best.

Among perennials the columbines occupy a prominent place. *Aquilegia Canadensis*, our native columbine, is of course first in bloom and one of the showiest, then there are a host of hybrids scarcely any two alike, as they intermix so very freely. [Get *Aquilegia Sibirica*, it is even earlier than *A. Canadensis*. And if you want true beauty get the genuine *A. cœrulea*, *A. truncata*, *A. glandulosa*, *A. chrysantha* and other species, they completely eclipse the mongrel hybrids.—ED.] *Pyrethrum roseum* in its many colors is very effective and it lasts in bloom quite a while too. *Saponaria ocymoides* is a mass of bright little pink flowers; this perennial is easily raised from seed or cuttings, and only needs renewing once in several seasons. *Heuchera sanguinea*, a lovely native plant with bright pink flowers, is a plant which needs soil with decayed leaves in it. The moss pinks are over all too soon; *Phlox pilosa* and *P. reptans* have taken their place. The vincas are in bloom; these plants make the most of their growth before the leaves are on the trees or at least before the shade is dense and as their leaves are hard and tough they are well suited for planting under trees where other things will not thrive [preferring a somewhat shady place.—ED.]

G. W. OLIVER.

Washington, D. C.

CANNAS.

The time is close at hand when we must be getting these plants into summer quarters, and it may be well to remind our friends with horticultural longings but some misgivings as to results, that the canna stands pretty near the head of the list in returning a maximum percentage of beauty and satisfaction for a minimum investment of trouble and money. It is emphatically "everybody's plant," and while appreciating and repaying care and culture, seems more tolerant of neglect than many of its floral companions, and with the bribe of an occasional dose of soapsuds often cheers and enlivens some impoverished city back yard. Good sorts are so cheap now that everyone with a bit of land ought to plant a few. Last season the writer having a surplus of the following sorts planted two beds about 8 feet by 12 as follows: One with Alphonse Bouvier massed in the centre with an outside edge of Florence Vaughan, the other a centre of J. D. Cabos surrounded with a row of Charles Henderson and an outside border of Mme. Crozy. The ground was made very rich with well-rotted manure, and, like all my cannas, they were profusely watered. These plants are water drinkers, and here is where the small householder comes in well again, for this is precisely the sort of manure he can the most easily furnish. Almost everyone in these days indulges in a hose and enjoys using it. In my case I should hesitate to say that I had a finer display on my place than these two beds fur-

nished, and these cannas are all of the old and now cheap sorts, but by no means shelved by their more recent congeners, and possibly not surpassed. If some of your amateur readers will give them a trial I can assure them that they will be well repaid and I believe that you will join me in the assurance.

Those more or less interested in and acquainted with these lovely plants will find many of the more recent ones superb. With me last season, amongst many new shades of red and crimson, F. R. Pierson, Columbia and Flamingo were all of high quality. Equally good amongst yellows were Mr. Westwood's Florence Barker, Antoine Wintzer's Golden Gem, and Pierson's Eldorado. The best of the new golden banded ones were Queen Charlotte, Souvenir d' Antoine Crozy and a free-flowering lovely seedling of Wintzer's named Fairy Queen. There are also several first-class ones which I saw growing on the grounds of my neighbor Mr. Denys Zirngiebel last season, and which I now see offered in the catalogues, viz: Mme. Bouvier, Midway, P. J. Berckmans and J. Wilkinson Elliott. Pierson's new ones, Little Billee and Trilby, I hear highly spoken of, but have not seen. Dammann's Neapolitan phenomenons Italia and Austria are at present very expensive, their value for general cultivation not fully ascertained, and so can best be left this season to experts and professionals, to whom we owe so many fine novelties, and who with many disappointments, like the good knight Durandarte always seem to "Have patience and shuffle the cards."

The amateur or even the tyro confining his choice to the best of the old standard sorts named above in numbers governed by the room he has to spare will be rewarded by a lovely display of flowers and semi-tropical foliage throughout the entire season, and taking up the clumps after the plants are touched by frost, without shaking the dirt from the roots and storing in deep boxes on a cellar bottom where the temperature does not fall below 40°, with just enough water to keep the earth from becoming absolutely dry, will find on opening them out the following spring that his riches have vastly increased. With this treatment I have not lost a canna in five years.

West Roxbury, Mass. W. H. C.

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The plants should be from October or December struck cuttings that had been wintered in a cold frame or from June or July cuttings planted in the field and then lifted and planted in a frame in September and wintered over; or from December and January cuttings kept growing on to 3-inch pot size (better in benches than in pots), hardened off and planted out not later than May 1. April 15 is better if freedom from frost is assured.

In setting out the plants have the balls of earth thoroughly wet, and plant only in fresh pulverized soil, after 3 p. m., and just before, not after, a rain is preferable. Set the plant firmly in the soil, but don't leave a hard compressed ball at the roots. Leave surface around neck of plant loose, and the plant must stand erect and not flop over.

Distance apart in the rows should be 18 inches, and the plants 12 and 14 inches asunder in the row. Keep the soil well pulverized on surface and up to the neck of the plant. About July 1 put on a mulch of marsh hay, chopped straw, spent hops or old manure from mushroom beds to keep the soil moist.

Watering should not be commenced out of doors, unless it is kept up till the fall rains begin. In seasons of drouth a thorough soaking once a week is a grand help to the plants. A constant sizzling or spraying without soaking the roots is an aggravation and accomplishes very little good. Keep the mulch on and the ground in a moist condition, and you should have a fine crop of flowers during June, July, August and September, and if frosts are not too severe a few in October, at least we got some fine blooms in October in Queens. I find the following varieties bloom fine out of doors:

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CRIMSON, Ferd. Mangold.
VARIEGATED, Minnie Cook, Armazindy, Helen Keller, in the order named.
YELLOW, Kitty Clover, for general utility. Eldorado bursts some if grown in too rich soil.

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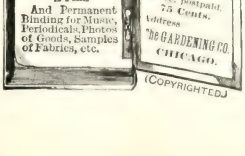

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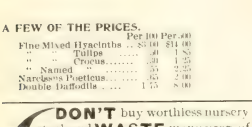

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GARDENING

Vol. IV. $2.00 A YEAR. 24 NUMBERS. CHICAGO, JUNE 1, 1896. SINGLE COPY 10 CENTS. No. 90.

AN OLD-FASHIONED COTTAGE GARDEN AT MAHWAH, N. J.

The Flower Garden.

NOTES ON SPRING FLOWERS AT MAHWAH.

The spring flowering bulbs are mostly past, but what a show they made, it is a wonder they are not more grown. I do not mean a bed of tulips or hyacinths, one can see them in any garden, but some of the rarer bulbs, of which there is a vast number. They are not very high in price, and by adding a few new ones every fall one soon can get up an interesting collection and in which there will be something new to see every day from the time the snow is on the ground till the end of May, and the flowers of the spring are more welcome than those of the rest of the year.

Among the bulbous plants to flower since my last notes of May 4 are *Narcissus amabilis*, perianth white and spreading long white crown; *N. Muzarts*, *Tazetta Orientalis*, perianth white, cup orange red, a very pretty flower, one of the last ones to bloom. *N. odorus plenus*, rich yellow flowers, an extra fine blossom. *N.* S. A. DeGraaf, large clear yellow perianth, cup yellow, very fine; *N.* Bernardi, perianth white, cup yellow; *N. poeticus ornatus*, perianth pure white, cup margined with red. These narcissi came into flower from 4th to 6th of May.

Among choice single tulips we have had some very fine and beautiful flowers. *T. linifolia* is one of the most beautiful ones I ever saw, it grows only about four inches high and has glowing scarlet flowers; when the sun shines on it it is seen at its best. *T. Eichleri* has very large, handsome scarlet flowers and is in every way a fine tulip. *T. Batalini* is a lovely yellow flower with very thick petals. *T. alba* is a fine, creamy white flower and a very good tulip; *V. vitellina* is a beautifully large primrose yellow flower. *T. Greigii* has large orange-scarlet to golden yellow blossoms with black spotted centre, and the foliage is finely spotted; these all came into bloom from the 5th to 8th of May.

Among the showy garden varieties of tulips we have had some very fine ones. Striped Beauty, rose, flecked crimson and white, is a large and showy flower and one of the prettiest tulips in the garden. Fairy Queen is a large and beautiful variety, mauve broadly margined with yellow; Gesneriana spathulata was very conspicuous in the garden, and we had a great many of it; the flowers are very large and of a rich crimson scarlet color, with a glittering black center; as a bedding tulip it is one of the best. T. Gesneriana albo-oculata has beautiful rose-carmine flowers with white centers. Gesneriana Alba marginata, white, edged rose, with bluish centre, it is a pretty flower. Golden Beauty, a rich golden tulip, one of the best of its color. Golden Eagle is a lovely crimson-edged yellow tulip and the petals are also nicely pointed. Picotee (or Maiden's Blush), large, white, gracefully recurved, petals margined with rose, this is a very choice and fine tulip; Retroflexa, lovely, large yellow flowers, petals nicely recurved, an odd and beautiful tulip; Bouton d' Or, a fine yellow tulip with petals of very thick texture lasting a long time in flower; Elegans, large, dark crimson flowers, petals elegantly reflexed; Elegans Variegata, crimson striped with gold, a large, showy, handsome flower. Both of these last named tulips are very fine. All the tulips mentioned came into flower from May 1 to 8, but they are by no means all the tulips we have, we have them here by the thousand and in great variety, but the ones I have named are among the choicest and best, and all lovers of spring flowers should have a few of these sorts in their garden. A lot of Breeder tulips we had in flower were very interesting, the colors were so curious and the flowers so large that one could not help liking them, although some of them were not what one would call pretty, they were more odd than beautiful.

Among hardy perennials, the choicest and most showy have been the single Chinese pæonies; how beautiful they are! Among them are all colors, from the purest white to dark crimson, and all sizes among the plants, from 8 inches high to 2½ feet; the flowers are very large, and to my liking are more lovely than the double ones. They opened their first flowers May 8, and some of them are still in fine flower; they are well worth growing. *Alyssum saxatile* with its mass of golden yellow flowers is flowering nicely. These plants were raised from seed last August and wintered over in a frame. *Trillium grandiflorum* made a nice show but is now past; although plentiful in some parts of the woods it is well worth a place in the garden. It opened its first flowers May 1. *Dicentra spectabilis* is in fine flower. Although an old plant, it is one of our showiest border plants; it opened May 7. Lily of the valley opened its first flowers the 6th of May. Although lily of the valley likes a shady place to grow in, the largest and finest bells are got from a clump planted in the open garden here. *Cypripedium pubescens* opened its first flowers May 2; it is one of the easiest to grow and its flowers last so long. It is quite easy to get, as the woods are full of it.

Trollius Asiaticus (globe flower) has been making a nice showing; its globe-shaped anemone like flowers of a deep yellow color are really very pretty. *Iberis sempervirens*, the evergreen candy-tuft, is in fine flower now; it is of easy culture and soon forms a large clump. Its white flowers are good for cutting. It opened the 6th of May. *Anemone sylvestris* (the snowdrop windflower) opened its pretty flowers the 11th of May. It lasts a long time in bloom.

Lupinus polyphyllus and its varieties *alba* and *bicolor* are in nice flower, their handsome pea-shaped blossoms, ranging in color from blue to white, make them one of the choicest of our early summer flowering border plants. *Veronica rupestris* came into flower the 10th of May, but it did not last long; it has small blue flowers.

Daphne Cneorum (the garland flower) has been making a nice show lately; it is a dwarf growing shrub with lovely pink flowers. For edging other low-growing shrubs it is one of the best little things we have got, and its flowers are very sweet. *Phlox procumbens* is still in fine flower. It is a nice rock plant; the foliage is fairly hidden with a mass of rose-lilac flowers. The foxgloves are beginning to open. We grow them from seed every year. They make nice plants sown in July and wintered over in a frame. After they are through flowering they are dug up and the beds filled with summer flowering plants. The English wood hyacinths, blue, red and white, are now in good flower; these scillas are real pretty and where grown in a mass they make a nice showing.

Ornithogalum nutans, *O. umbellatum* and *O. posandrum* opened their flowers May 8; these all are pretty bulbous plants, growing about a foot high and have nice white flowers. They are easy to grow.

The irises are beginning to be quite gay, but it will be a week before they are at their best. The German ivies, of which we grow a great many varieties are easy to grow and make a fine show in the garden. *Iris Sibirica*, with its tall spikes of blue to white flowers, is also making a good display. The bulbous *Iris Susiana* opened its first blossom on the 12th inst; oh, what a lovely iris it is! Writing cannot do it justice. The wonderful markings in the flower are fine; the color is a dark gray with veins of brown on a white ground work; the hairs on the falls are black. This iris needs a different treatment from most other irises, as it has to be dried off from June till it begins to grow the next season; we grow it in frames with a lot of others of the same class, and they are well worth all the trouble one can give them. Another rather pretty plant that came into flower on the 19th was *Eremurus robustus*; it has proved quite hardy here. The spike of flower on our plants is about four feet high, but next spring we expect to see it twice that size.

Erythronium giganteum is a nice, large, dog's-tooth violet, the flowers of which are very large and of a straw color, and the foliage is nicely mottled; it is one of the nicest of all and quite easy to grow.

In the greenhouse our show pelargoniums and calceolarias are now past, but gloxinias, tuberous begonias, achimenes, and streptocarpus are coming along fast to take their place. DAVID FRASER.

Mountain Side Farm, Mahwah, N. J., May 21, 1896.

NARCISSUS—QUESTIONS ABOUT THEM.

X., South New Jersey asks:

1. "In lifting and replanting narcissus how deep should they be put in the ground? Mine have not bloomed very well this year, in spite of being in good garden soil. I find that they are six inches or so in the ground, and thought perhaps that might be the trouble."

Ans. That depends a good deal on the kinds grown; for instance in your sandy land 4 or 5 inches under ground is not too deep for big bulbous kinds like Horsfieldii and Maximus, but three to four would be enough for Bulbocodium and jonquils. If your bulbs are in good condition and they are of large kinds, being six inches under ground shouldn't prevent them from blooming. If they were good bulbs, that is, bought bulbs, and newly planted last fall they should have bloomed well this spring; but if they were old bulbs in your own garden probably an enervated condition last year, or a too early growth in fall and consequent check in winter, would interfere with their goodness this season.

2. "My jonquils bloomed much better. Do you consider it necessary to lift and replant jonquils every year?"

Ans. Jonquils are quite hardy in southern New Jersey, hence there is no need of lifting them on that point, but if they are left in the ground, should the summer prove very dry, so that the bulbs get a long and decided rest, they are apt to start into growth in fall and what leaves get above ground before winter sets in get "burned," thus weakening the bulbs and their flowering capacity. But in good moist ground we have had jonquils live on year after year in the same clumps and increase in strength and bloom beautifully.

3. "Is it possible that a daily watering of the young seedlings in the garden with a revolving sprinkler that necessarily waters everything else, could have a bad effect on the narcissus?"

Ans. If this is done in the afternoon and evening, it wouldn't hurt the plants, but a too frequent recurrence of it might impair the blossoms. While the revolving sprinkler is excellent for shallow rooted plants like young seedlings, grass, etc., it isn't quite so good for deep rooted stock as it takes a good deal of revolving to soak the ground six or eight inches deep, even if the ground for two inches deep be very wet, and you know narcissus bulbs are deeper than that.

4. "Might this same daily watering, rendered absolutely necessary by very dry hot weather, be the cause of the blighting of many of my tulip blossoms? Those which got the full morning sun were the ones most affected. The Grand Duke de Russie, Grand Master of Malta, Wouvermans, and Canary Bird did not blossom at all, while the Queen of Violets, Vermillion Brillante, Van der Veer and others were very poor, but close beside them other early single tulips were blossoming magnificently. Are some kinds of these tulips more tender than others?"

Ans. No, we don't believe the watering had anything to do with the non-blooming of the tulips; if they were new bulbs, that is bought and planted last fall, we would like to know what sort of bulbs you got. The varieties you name are not the cheapest in the market, but many "early single" are among the commonest and cheapest grown. Better be sure you plant A 1 bulbs if you want to get an even run of A 1 flowers. In your soil it isn't a matter of tenderness at all, for all named are perfectly hardy there without a bit of winter mulching. If they were your own old-grown bulbs, however, possibly it was a simple case of exhaustion and deterioration. Were you to use a mulching of well broken up chaffy stable manure, or lawn grass mowings over the ground containing your bulbous plants, we believe there would be no necessity for watering your ground half as often as you do now.

5. "I want to put out for the summer in a shady part of my garden an azalea and two begonias, which are to be used again as house plants in the winter. On looking up in my file of GARDENING the articles on these two sorts of plants, I see that you recommend this treatment for both. But again the question of overhead watering comes in; in this porous sandy soil and with our extremely dry hot summers every inch of the place (which luckily is only 110 feet square in all!) has to be watered every day. Will any begonias stand the overhead watering? Would it be better to keep them in the house or on a fairly shaded porch?"

Ans. The azalea will stand it all right, providing this watering is not done in the heat of the day, but with the begonias it is an experiment. The tuberous-rooted begonias stand it best. Sometimes this section behaves admirably and then again under apparently like conditions they don't do well at all, so while you hope for success, prepare for disappointment in their case. Of course, in pots they can be grown with certainty, but they need a great deal of attention.

6. "What is it that eats the leaves of my wall flowers like this (sample enclosed) and entirely destroys all their beauty?"

Ans. A turnip flea-beetle no doubt. Repel it by dusting your plants, when they are wet with dew, with fresh tobacco powder, or take some fine dry hot ashes and sprinkle as much kerosene on them as will moisten them but still preserve them free enough to scatter over the plants, and dust this over them. We would not hesitate to use arsenite insecticide on young plants, but would hesitate to do so on plants in bloom, not because they would hurt the plant at all, but they might injure ourselves when we pick (and often) taste the flowers.

THE WILD GARDEN.

Who wants a wild garden! I imagine some may exclaim when the above title meets their eye. Why, the first idea of a garden is a plot that will be tended, kept in order and maintained in conformity with accepted notions of what the garden should be, and here is the point—these accepted notions of garden design and planting are so restrictive that they shut out from our gardens a vast display of possible beauty, which happens to be unattainable through the systems we practice. I am not about to advocate letting the garden run into a wilderness, although much beauty would be gained by so doing if it happened to be in proximity to some of Nature's beauty spots that I have lately seen in the woods about me, little paradises of ferns and flowers. My aim is to try and induce those who have gardens and pretty lawns to court a little more fellowship with Nature, to realize more pleasure and get more beauty out of the home grounds in a simple, natural and inexpensive way. What a sense of pleasure most of us feel when spring returns and our faithful earth mother, released from winter's ice bonds again, decks herself with lovely flowers. Too often, however, the harbingers of spring greet us by the wayside and not in the garden, aye, and even now (May 20) I see bare, bald gardens waiting for their tender summer occupants, whilst "Nature unadorned is adorned the most."

Wild gardening consists in taking a leaf out of Nature's book, as we see it spread before us. Ten thousand lovely flowers rise up, blossom gayly and retire to rest again untended by mortal hands, but the only flowers we permit ourselves to have in our gardens we make the object of more or less ceaseless care and attention. Some of them need it, but many more do not. We take a certain flower from the prairies or mountains of the new or old world, transfer it to our garden and make it the object of special care, yet it remains the same. On the other hand certain fine garden flowers are creatures of our own creation, so to speak, perfected developments or improvements on wild forms, brought about by cross breeding and good cultivation, and mostly needing it to sustain them in perfection. These latter do not now concern my purpose, but among the first named there exists a perfect host of beautiful flowers that ask or want no special care, only to be taken and planted under conditions akin to those they affect in their natural state, and thus the wild garden I suggest is a portion of the garden in which these flowers are naturalized, growing as though they are wild. This can be done in a variety of ways and using different types of vegetation, but first and foremost of all it is the plan to adopt with the early spring bulbous flowers that go early to rest again, and if we grow them in the beds and borders they leave bare spaces ere the season has hardly begun. When winter relinquishes its icy grasp of European meadows the earth is softened, and the first blades of grass appear, borne as it were upon the points of the tender green blades come myriads of blossoms, snowdrops and snowflakes suggestive of lingering snow, crocuses opening wide their rich cups and pale blue anemones covering the ground like an earth reflection of the spring sky overhead. "Like leaves on a stream they come and go, and leave no trace behind" as they sink to rest in the grass. The daffodil next bursts out to carry on the display, and there is or rather need be no break at all in the succession of flowers that tell the story of the garden year and mark the seasons as they pass. All this beauty is possible, exists and is enjoyed in grass that is fed off by cattle or mown in June. Therefore if there is a meadow near the house, make it a wild garden, or if the lawn area is extensive don't mow quite so much of it in early spring, but set apart a picturesque, informal, tree-adorned spot for a spring wild garden. It can be mown later on, so that only for a short period need the lawn space be curtailed, and even those with a limited area of grass may have and enjoy this feature, which once created at one first cost grows in extent and beauty year after year with little further care and no more outlay in purchase of plants or roots. Wild gardening can be prettily expressed in a variety of ways adapted to particular periods, but for the spring season it is without question the simplest and readiest means of adorning the garden with the flowers of that season, so if the editor thinks the subject of sufficient interest I will make "A spring wild garden" my next theme, and say what and when and how to plant. A. HERRINGTON.

Madison, N. J.

FLOWER GARDEN NOTES.

BEGONIA EVANSIANA has lived through the winter, but did not make its appearance above the ground until May 10.

HEPATICA TRILOBA. A large clump of this which usually blooms the first week in May, has shown no signs of life yet. I fear the roots must all have been killed by the hard winter, although I imagined this plant was entirely frost-proof. [So far as intensity of frost is concerned it is perfectly hardy, extreme drouth last summer and fall may have enervated the plants to such an extent that they were unable to survive the winter.—ED.]

DROUTH. At date of writing, May 19, we have had no rain worth mentioning in Bergen Point, N. J., since the heavy snow storm of April 7. The effects have been disheartening to flower lovers, and more so to truck gardeners. *Mertensia Virginica* has not bloomed at all. Tree pæonies, which last year were a most gorgeous sight, have few flowers and comparatively small. *Primula officinalis*, which has made very large and healthy clumps, without any winter protection, had only a few flowers, some clumps not blooming at all. *Kosteletzkia Virginica* just showed itself above the ground a day or two ago, and some other herbaceous perennials with fleshy roots have failed to move even yet, although I know they are still alive.

ROSES WITHOUT WINTER PROTECTION. I read constantly that even the hardiest roses will do better by being covered during winter, with some kind of protection, more or less. My experience does not warrant my adopting the plan, as I desire nothing better in the way of healthy growth and profusion of buds than I have on Magna Charta, Jacqueminot, Clothilde Soupert, La France and Climbing La France, Mrs. H. R. Watson, Queen of Queens, Malmaison, Agrippina, Damask, Oakmont and Mrs. John Laing, which came through the hard season without a stitch of winter clothing on, so to speak, and were in a position to receive every

ray of sunlight, thus being subjected to constant thawing and freezing.

PLANTS FOR HARD, DRY SOILS. On a slope in an out of the way corner of the garden, I have planted *Genista tinctoria*, *Geranium sanguineum*, *achillea*, *Eupatorium ageratoides* and hardy asters. In dry weather the soil becomes baked as hard almost as a rock, and yet the genista, eupatorium and geranium grow well and bloom profusely. The others do not thrive as well as they would if in a more favorable location, but they seem well adapted to fill up some hard, dry and sloping spot such as the above. [This question of what will grow on hard, dry soil, is a very vital one to us. Schenley Park having many acres of steep naked hills that we must find clothing for and plenty of it. Among trees the best plant is the yellow locust, and next come some species of our native thorns (*Cratægus*). But before we will say much more about this sort of clothing, we intend going out into nature's wilds to see and note what she used for this purpose.—ED.] L. C. L. JORDAN.

SPURIOUS VERBENAS.

A reader writes: "We bought three years ago a lot of verbenas, scarlet for one bed, white for another. This year we have hardly one of the original color, but instead the homely purples and striped. Do you suppose they are seedlings, and that the better ones have died out?"

Ans. As a rule verbenas come fairly true from seed, that is the majority of the seedlings raised from seed saved from a scarlet flowered variety are apt to have scarlet flowers, and white flowers from the seed saved from white blossoms. Why yours behaved so erratically we cannot tell. If you saved the seed from the scarlet flowers, sowed it and got purple and striped flowers from it, the original strain must have been very poor; but if the seedlings came up of their own accord in the bed the next spring, and it was these spontaneous seedlings that bore the variously colored flowers, then the conclusion we would come to would be that in some previous year you grew verbenas in that bed, and the spurious seedlings were the progeny of the long-ago plants, and not of the scarlet or white flowered ones o the year before.

DEGENERATE CANNAS FROM SEED.—Mr. D E., writes. "We have grown a number of canna plants from seed, but always have nothing more than the narrow-leaved yellow variety—evidently one of the primitive forms of the plant."

Ans. Then probably you don't raise the seedlings from your own saved seed. Get a few plants of Mme. Crozy, Alphonse Bouvier, Charles Henderson, or other first-class sorts, and plant them out in your garden and save seed from them, and sow these seeds, and we are sure you will get a great deal more than narrow-petaled, yellow-blossomed seedlings from them. At the same time we are equally satisfied that many of the seedlings will be yellow-flowered and poor too, but many should be vividly colored and of go d size and form.

Trees and Shrubs.

TREES AND SHRUBS IN BLOOM.

A continuous spell of clear hot weather with cloudless skies and entire absence of the usual spring rains has given us here the unprecedented experience of having

HOLLY TREE AT MARIETTA, MD, No. 1

trees and shrubs come into bloom about two weeks or nearly so, earlier than their average annual time of flowering. The veteran nurseryman, Mr. Geo. Ellwanger, remarked to me the other day that he did not remember anything like it before. We usually expect to have at this time of year a display of lilacs in good bloom, but at this date all the varieties of *Syringa vulgaris* are entirely past. The Hungarian lilac *S. Josikæa* is now at its best and *S. villosa* is in good bloom.

Among spiræas, Van Houtte's and *S. chamædrifolia* is almost past, *S. lanceolata* is showing a few good flowers, but it has been winter killed more than usual with us; *S. rupestris*, *S. ulmifolia* and *S. rotundifolia* are now in bloom; and *Neillia* (Spiræa) *opulifolia* is coming into bloom. A few stray flowers are to be seen on the pearl bush (*Exochorda*) but its glory has departed since nine or ten days. *Rhodotypos kerrioides* is real pretty just now with its large, pure white flowers resting prettily among its pleasant green foliage.

Rosa alpina has been giving us a few flowers since ten days, and *Rosa rugosa* in its different v rieties is very showy in bloom. *R. lutea*. *R. spinosissima* and *R. Sabinii* are coming int flower; and a few of the yellow butter-cup like flowers are open to-day on *Potentilla fruticosa*, and *Fontanesia Fortunei* is just opening its greenish yellow flowers.

Calycanthus (strawberry shrub) in its several forms has been in good bloom for some time. On account of its pleasant fragrance it should have a place in all collections. *Azalea nudiflora* is about past, and *A Vaseyi* passed out of bloom about a week ago. *A calendulacea* is now in pretty good bloom. The Catawbiense hybrids of rhododendrons are now beautiful; such varieties as Blandyanum, Atrosanguinum, John Walter, Roseum Elegans, and Album Elegans, being very attractive.

Among the honeysuckles some of the bushy species in bloom with us just now are *Lonicera orientalis*, *L. Caucasica* and *L. Maximowiczii*, with flowers not very conspicuous. *Lonicera Albertii* is a very pretty bushy species with fragrant rosy lilac flowers and now at its best. It is entirely hardy here. The different varieties of the European woodbine (*Lonicera Periclymenum*) are now in excellent bloom and are less infested with aphides than we have had them before. For some reason or other they are particularly subject to the attacks of plant lice. The yellow flowering species (*Lonicera flava*) and the scarlet trumpet honeysuckle (*L. sempervirens*) are also in full flower.

Diervillas in their numerous forms will be in full bloom in a day or two. *D. candida* and *D. hortensis rubra* are now at their best. The Chinese fringe (*Chionanthus retusus*) flowered splendidly; it is now about past, but the American white fringe *C. Virginica* is now very beautiful with its fluffy white petals.

The earliest flowering caraganas are past, but *Caragana spinosa* is in good bloom now. The rose acacia (*Robinia hispida*) and its variety *Camuseti* are at present very showy, and the clammy l cust is coming into bloom. *Coronilla Emerus* has a few lingering flowers. It bloomed quite freely this season.

Cytisus purpureus has passed out of bloom, but *C. elongatus* is still in good flower. *C. scoparius* (common broom) has done splendidly this season; and has been a mass of showy yellow blossoms for the past week. What a lovely thing it is, and it well repays any special pains taken to protect it from zero weather, for it will not stand that with safety.

Ulex Hispanica, a diminutive shrub with abundant yellow flowers, is now pretty. It seems to do well with us without much protection.

The bladder senna (*Colutea arborescens*) with clover-like foliage and yellow

AMERICAN HOLLY TREE AT MARIETTA, MD No 2

pea-shaped flowers is coming into bloom. *Wistaria frutescens* is in full bloom but it is not nearly as showy as is its Asiatic relative *W. Sinensis*.

The Venetian sumac (*Rhus Cotinus*) is in bloom, with its greenish panicles, and *Acer Ginnala*, with greenish flowers, is passing out of bloom; other shrubs with similar inconspicuous flowers now in bloom are some of the euonymuses such as *Americanus*, *Yeddoensis*, *angustifolias*, and *verrucosus*. The only barberry in flower just now is *B. stenophylla*, the others are past.

A few flowers still linger on *Daphne alpina*, and a few may still be found on *D. Genkwa*. *Daphne Cneorum* was very showy this season, but it is past. The common snowball has been conspicuous for the past week; and the high bush cranberry (*Viburnum Opulus*), and *Viburnum pyrifolium* are in good bloom, and *Viburnum Lentago* will be in flower in a day or two. *Cornus stolonifera* is passing out of bloom. JOHN DUNBAR.

Highland Park, Rochester, N. Y., May 23, '96.

AMERICAN HOLLY TREES.

I take pleasure in sending you pictures of the holly trees at my country place, "Marietta." Trees, and other objects, have yet interfered with getting a point of view showing the best shape of the hollies. You will notice No. 1 is rather ill-shaped at the top and inclines to the right. This is due to two limbs of a pecan tree (forty feet away) reaching out over and beyond the holly. I cut these limbs away several years ago. Also No. 2 has been interfered with on the right or north side by the nearness of a golden willow, removed some years since. The height of holly No. 2 is 45 feet. No. 1 measures—height 36 feet, 6 inches, circumference of trunk 18 inches, above ground, 4 feet 6 inches, and spread of limbs (three different measurements) 43, 43 and 45 feet. Both trees are trimmed up high to clear the view to the westward and give headroom on the lawn. The branches appearing on either side of the bare trunk of No. 1 do not belong to it but to a young black walnut behind and some distance beyond it. No. 1, for some reason, is a heavier bearer of berries than No. 2, and in winter is a mass of coral-red and green, more equalized in color towards the top because the nearer the top the greater number of berries—always.

I am led to take this occasion to suggest your saying a good word for our native black mulberry as a shade and ornamental tree. A young one may be seen to the right and rear of the holly in the No. 2 picture. It is of quick growth and dense shade, the color and size of its leaves make handsome foliage, the bark is clean and attractive and the tree, with room enough, shapes itself, or can be readily shaped, to symmetrical and graceful form. A desirable feature is that it does not "draw" the land, and thus does not affect the growth of grass beneath. Though it is slow coming to full bearing its fruit is not to be despised. Indeed, when taken ripe from the tree, my taste prefers it to any of the small fruits except perhaps the strawberry.

Maryland. GABRIEL DU VAL.

SOME LILACS.

(*Syringa.*)

Out of a dozen sorts that I have cultivated for fifteen years there only two or three that suit my fancy, and at the head of the list I place Rothomagensis var. rubra, a distinct variety with small leaves, bright reddish flowers, and panicles of extraordinary large size and of great abundance. It is the most free flowering of all lilacs. My plant is over fifteen feet high, and with its great abundance of large bunches of flowers, which causes the branches to droop gracefully, and the bright color of the flowers makes the plant very attractive. Were I confined to only one variety it would certainly be Rothomagensis.

My next favorite is Nana, which is of a dwarfish growth, the plant only attaining about 8 feet in height. It is a very distinct sort, with large compact trusses made up of a number of small spikes, with large flowers of a dark reddish purple color, and is beautiful and attractive.

Cœrulea Superba has a large truss made up of a large number of small spikes, sometimes as many as a dozen; the flowers are small and of a very delicate appearance, needing a close examination to see its full beauty; it is described as being of a clear blue color; but it looks to me washy and unattractive in color.

Prof. E. Stockhardt has large trusses of lavender colored flowers, but it also has a washy appearance. Vulgaris Alba and Alba Grandiflora have both been shy bloomers with me. [This while they are in a young state, is characteristic of them; try Frau Dammann and Marie Legraye, true; we have found that they bear earlier in life and keep it up.—ED.]

Siberica Alba has small narrow leaves, but it is a good grower and very free flowering, flowers whitish with a purple tint—a dirty white color. White Persian is of dwarfish growth, flowers of same color as Siberian. [That's right, such is the plain truth.—ED.] Lemoinei flore pleno has large panicles of double or semi-double flowers of a reddish purple color, but not so bright in color as Rubella fl. pl., which has large double flowers of a clear violet red, much more bright and attractive than Lemoinei.

Josikæa is a distinct species, with dark shining leaves, and purple flowers in June after the other lilacs are out of bloom. It is esteemed for its fine habit and foliage. Marie Legraye has large panicles of pure white flowers and is very beautiful. [Undoubtedly the finest white lilac in existence, but because one has the label doesn't mean he always has the plant true to name.—ED.]

Virginalis has large compact panicles of fine white flowers, very refined and delicate. Souvenir de Ludwig Spath [The best dark colored lilac we know.—ED.] dark purplish red flowers and Frau Dammann with pure white flowers are doubtless the two best new varieties. My plants are not yet large enough to bloom and the same may be said of Princess Alexandra, white; Lamarck, rosy lilac; Villosa, a species from Japan. GEO. S. CONOVER.

Geneva, N. Y., May 15, 1896.

WISTARIA—JESSAMINES AND CLEMATIS GOLDEN-LEAVED POPLAR.

1. "Are seedling wistarias worth saving? Ours are great seed bearers and we have to root out the young plants. We have a light lavender variety that blooms heavily in the spring, again in the fall, but is never all summer without bloom. We find we can make it bloom by turning on irrigation water and soaking the ground for three or four days."

2. "We find our jessamines and clematis very impatient under irrigation, the least excess of water causing the leaves to fall and the plants to show every indication of distress."

3. "Have you grown the golden-leaved

poplar? It is one of our brightest of fancy-leaved shrubs, as we cut it down to ten or twelve feet and use it for a screen to shut out a vista of the trunks."

California. M. B. E.

1. Seedling wistarias are just as good and true as those are that are raised from cuttings, root sprouts, or layers, except that they are slower in coming into bloom; and in the case of the white-flowered varieties there is no absolute certainty that the seedling may be white and not blue flowered. Both American (*W. frutescens*) and Chinese (*W. Sinensis*) wistarias bloom twice a year, namely in full measure in spring, and scatteringly later on. We cannot tell, without a fuller description of it than you give us, what the pale lavender one is, but suspect it must be the American one, which is later blooming than the other, and never so full, and has shorter, chunkier clusters. The effect of the irrigation after the wood had formed would be, we should expect, as you say, to throw the vines into a renewed burst of bloom.

2. The effect of irrigation on jessamines and clematis we should expect would be as you have found, but this refers to the large-flowered clematis as Miss Bateman and Jackmanii only and not to the small fleecy-flowered ones as *montana*, *Flammula* and *paniculata?*

3. So long as you keep the golden poplar cut down, so long you will be likely to hold it in good thrifty condition and with fine foliage. But as a specimen lawn tree it isn't one we would hanker after.

DOUBLE-FLOWERED MOCK ORANGE.

Fresno, Cal., writes: "Is it common for the mock orange (*Philadelphus*) to show blossoms of both kinds like the enclosed. We have two large plants ten to twelve feet high and as large through—that bear every year from half to fifth of their crop of double flowers. Can you tell us the name of this variety as it is much finer than the other common ones we have."

Ans. The variety is, apparently, a form of *Philadelphus coronarius*, and a good one, its flowers being whiter than usual, and quite as fragrant. The doubling is not uncommon, but the proportion is unusual. Of course we have a variety with all double flowers, and we have before now seen the double and single blossoms on the same plant.

AZALEA MOLLIS.

This, more properly speaking, *Azalea sinensis*, is commonly known as the Japanese flame-colored azalea. It claims China as well as Japan for its home, but it probably reached us from Japan. It is an extremely showy plant in the open garden, blooming in the middle of May, and a dozen or more plants grouped closely together, presents a brilliant mass of color ranging from a clear lemon yellow to orange red. The common name "flame colored" is appropriate, but it is the flame color of a brilliant sunset that it imitates. These plants are propagated largely in Holland, as well as in this country, and can be obtained in the form of bush plants or standards. The illustration here given is from a photograph taken May 15 of the present year, when the blooms of some of the standards were a little past their best. It comprizes a dozen bush and six standard plants. This is the third season in which they have blossomed and they were better budded this spring than when I obtained them. I mention this to show that these plants can be grown with fair success under proper conditions even in our climate, which is so uncongenial to this genus.

When obtained from the nursery their ball of roots was immersed in a tub of water for ten or more minutes. A safe rule is to allow them to remain immersed until the air bubbles discontinue rising to the surface. Every air bubble appearing tells of a dry spot in among the roots where the water has gone in and driven it out. As our soil is a clay loam and supposed to contain lime, which "they say" is not congenial to plants of this class I substituted black soil and leaf mould.

Planting the az lea—and the rhododendron also—requires certain specific details, upon which the success or failure depends. The immersion spoken of above is one, and a thoroughly pounded, compacted soil surrounding the ball of roots, when planted out, is another. Their roots are minutely fibrous, almost hair-like, and multitudinous in number, and embrace and permeate the soil immediately surrounding them, in such a way that the "ball" of roots can be carried around, and in fact roughly treated, without much soil being shaken off. When these hard balls are planted in the ordinary loose soil, and in the ordinary way, they shed all water falling upon them; it escaping into the surrounding loose soil, which their roots do not penetrate to any great extent. Gradually the ball becomes dry and weakness and death follows.

I dig a hole some four inches wider all round than the ball to be planted, setting it at a depth equal to that it occupied in the nursery, which is indicated by the earth stain upon the stem. Then break down the soil from the outer edge of the hole a few inches deep at a time, pounding each layer hard with a brick, rammer or anything that will pound it hard, gradually filling up even with the surface, the object being to have all the soil in the bed, in between the plants, as compact as it is in among the roots. Then the water will go where it can benefit them. Mine are planted quite thickly, in fact the branches almost touch each other. The standards are distributed among the bush forms in such a manner that when viewed from our porch it gives two tiers of bloom. When planted permanently more room should be allowed each plant. After flowering all seed pods are cut or pinched off, so as to allow what energy the plant would naturally expend in maturing them to be devoted towards producing flower buds for next season's bloom. Planted in among them are a few plants of *Callirrhoe involucrata*, the crimson flowered poppy mallow, which trail upon the ground, and give their pleasing flowers all summer. Occasionally one becomes obtrusive and appropriates an azalea for a trellis but it is dislodged, as nothing should interfere with the full maturity of the azalea. When fall comes the plants are lifted and treated to the same tub bath again, as they should go into winter quarters without a suspicion of dryness at the roots, and then planted in any box or boxes that come handy—soap boxes are good—and then wintered in a cellar where the temperature ranges from 32° to 45°. They remain there until about April 25, when they once more undergo their semi-annual bath and are planted out.

In another part of my grounds is a group of smaller plants that have passed their third winter in the open ground, well protected with leaves and a box placed over them, but they are not as vigorous as those entertained in the cellar.

In order to get detail in the picture illustrated, the camera was placed quite closely to the plants, so that their relative position in the bed is not shown. The bed, part of which they occupy, runs out into the lawn like a bay across which you see the lawn. The border immediately in front of the azaleas is the multi-named *Astilbe Japonica*, also known as *Hoteia Japonica* and *Spiræa Japonica*, which will soon be in bloom. Those to the left are perennial phlox and to the immediate left of them is a group of columbines. W. C. Egan.

Egandale, Chicago, May 22, '96.

[We may say that *Azalea mollis* (*Rhododendron sinense*) is perfectly hardy at Dosoris, and too, seemingly here in Pittsburg. While its flowers are not as brilliantly colored as are many of the Ghent varieties, its blossoms are larger and more pleasing, and better still, the plants bear moving with more impunity. For winter forcing in the greenhouse they are very good.—Ed.]

The Burr Oak and Green Ash for dry climates.—In *Rural Life* a Nebraska farmer is quoted as saying "One lesson apparently taught by the drouth is that some varieties of forest trees generally planted are unsuited for our dry climate. * * * This spring the maples are about all dead, catalpas more than half and walnuts about one-fourth dead, while burr oaks and green ash are all alive and growing." And the editor, Prof. L. J. Budd, of Ames, Iowa, remarks. "We have watched the behavior of the burr oak and the green ash during the drouth and find no native trees have stood it better. In the blue grass sod on the college campus with blue clay 100 feet thick near the surface, our single specimen of burr oak twenty or more years old kept up its growth and bright green expression of leaf, while hackberry, hard maple, box elder, and other trees near it had a pinched and starved expression. Our rows of green ash also held up bravely when the earth was driest and hottest. Of the trees planted on dry knolls of the cuts of the Northern Pacific road twenty-five years ago the burr oak and green ash have stood it best of all, but the burr oak is now king in size and thrift. It is also the best tree on the high land near Devil's Lake in Dakota."

Koelreuteria paniculata.—C. F., Davenport, Iowa, asks: "What is the name of the tree of which I enclose a leave. None of the gardeners here know it. I think it is from seed picked up in Washington. The tree is about 6 years old and 5 feet high, perfectly hardy."

Ans. It is *Kœlreuteria paniculata*, a little tree from Northern China, and one of the most desirable you can have in your garden. It bears terminal, large, compound panicles of small yellow flowers in summer after the bulk of the pretty flowered trees have done blooming, and then after the flowers come inflated bladdery seed vessels most as attractive as the flowers. Look in Gardening, Vol. II, July 15, 1894, and page 353, and you will there see the most beautiful and truthful illustration of this tree ever published.

The Lilacs Won't Bloom.—H. B., St. Louis, writes: "I have some white-flowered lilac bushes that were planted five years ago, and they have had no bloom so far. They stand about six feet apart and are healthy and strong. Should they not have bloomed before now?" *Ans.* Young lilacs are often very disappointing in this respect, and some

A GROUP OF AZALEA MOLLIS AT EGANDALE.

varieties, notably Alba Grandiflora, are particularly shy blooming in a young state. If your ground is very firmly packed so as to induce a short-jointed firm, rather than a gross, soft growth, the bushes will run to flower buds more than before; root pruning also is apt to accomplish the same end.

Roses.

SOME EXPERIENCE WITH NEW OR RECENTLY INTRODUCED ROSES.

HELEN KELLER at present does not indicate a strong growth; excessive propagation may account for this in part. The color is good, brilliant rosy cerise; shell-shaped flower, free blooming and fragrant.

MARCHIONESS OF LONDONDERRY, a charming rose, color ivory white, petals of good substance; large reflexed flower, globular form; a fairly strong grower, and it forces well. I fear this rose will not prove entirely hardy in our northern climate, as the past winter has made havoc with the plants, and the same can be said of its sister, Margaret Dickson, grown by the same originator.

MRS. R. G. SHARMAN CRAWFORD, a plant of medium growth; color deep rosy pink, the outer petals shorter than the inner; imbricated form, free flowering; if large enough in flower, will make a good rose.

CLIO, a plant of remarkably strong growth, with almost a climbing or pillar tendency; wood very thorny, large spines; color of flower delicate flesh, shaded in center to pink; of globular form; a very free bloomer. This rose is so strong in its growth, and so attractive in color that it must prove an attractive garden variety.

PAUL'S SINGLE WHITE is a very attractive flower having a single row of pure white petals, with yellow stamens; plant a good grower and bloom quite fragrant.

PAUL'S PINK ROVER, color very pale pink, strong sweet perfume; strong grower suitable for a pillar rose.

PAUL'S EARLY BLUSH, a very good grower; large fine shaped flower; color light silvery blush.

MARQUIS OF SALISBURY, plant medium in growth, an excellent bedding rose for summer; color of flower bright velvety scarlet, with long buds; a free bloomer, altogether good.

SPENCER, in color, satiny pink; in form like Baroness Rothschild, but with more substance, though the plant is not more vigorous, or hardy than the latter, and I prefer the Baroness.

The Penzance Hybrid Sweet Briars are a charming addition to this class of roses, possessing the robust vigor of the old sweet briar and in addition a variety of color from deep rose to dark crimson, blush, pure white blushed with rose, and soft copper with metallic lustre, and they all have the delicious sweet briar scent of foliage and flower. The varieties, Lord and Lady Penzance, seem to be the most delicate in growth. WM. H. SPOONER.

Jamaica Plain, Mass.

ROSES.

Those of recent introduction that are desirable for the amateur because of their distinctive character in colors, free flowering qualities, and hardiness are:

MME. CAROLINE TESTOUT, a lovely clear bright pink of the largest size, in habit and form of flower somewhat resembling La France, but with larger and finer blooms. If good strong plants are set out early in the spring they will bloom continuously all summer till frost comes, and with very slight protection can be carried through our ordinary winters quite safely. It belongs to the same class as La France (Hyb. Tea).

CAPTAIN HAYWARD, H. T., is of a bright crimson shade of carmine, a new color, and it is an exceedingly fine and attractive flower, of large size; the foliage is also very attractive—a very free blooming variety.

HELEN KELLER, H. T., although quite new and scarce yet will soon become a great favorite because of its beautiful shade of rosy cerise color and large, handsome and well built flowers. It is very free for this class of roses.

MME. JOS. COMBET is another of the H. T. class and as I saw it in Europe last year it was certainly one of the gems among roses—having beautifully shaped flowers, creamy white, the center rose and pale yellow blended, forming a very charming combination. It is a vigorous grower and free.

MME. JOS. BONNAIRE, H. T., bright China rose with reverse of petals a silvery pink, is a very large flower in the way of Paul Neyron.

MARCHIONESS OF DOWNSHIRE, H. T., satin or soft pink shaded with rose; a large handsome flower and a very vigorous growing plant.

MARCHIONESS OF LONDONDERRY—pearl white, a very large, fine, well-built flower of great substance, with fine, handsome foliage.

MARCHIONESS OF LORNE, a beautiful clear rose pink, fragrant flower, and very free flowering rose.

MRS. R. G. SHARMAN CRAWFORD, H. R., is another very free, vigorous grower, but hardly as desirable as some other kinds.

MLLE. SUSANNA DE RODOCANACHI is not exactly a new rose but if it were not one of the very best roses of its class ever introduced, its terrible name would have killed it ere this; its sterling qualities, however, commend it to all.

CALOCARPA—Hybrid Rugosa, will prove a charming addition to those who admire this class and their lovely single flowers, bright glossy foliage and handsome fruit.

CARMINE PILLAR is a single flowering

climber of extra strong habit, and when in full flower it presents an exceedingly attractive picture as a pillar or for covering trellis or arch. This is one of the very best roses known.

CRIMSON RAMBLER with its magnificent clusters of bright crimson flowers has the ability to grow up and cover a large space in a single season. If these last two were allowed to grow over rock work, rough trellises or any similar position at random, with just sufficient tying to prevent the wind tearing them to pieces—what a glorious sight they would present every June, at least they have done this with me so far. JOHN N. MAY.

Summit, N. J.

A GREEN ROSE.—H. B., St. Louis, writes: "I have a green rose among the small plants I raised last fall; is it common, and has it a name? The flower is small and perfectly green." *Ans.* The green-flowered rose is quite a curiosity, and belongs to the Bengal or monthly class. It isn't new at all; we have known of it since ever we remember roses. The flower is somewhat small, but perfectly green, and scentless. It is usually referred to as China rose viridiflora or Rosa Bengale verte.

The Greenhouse.

POINSETTIAS.

In a recent issue of GARDENING a lady subscriber tells of her very successful treatment of this favorite plant. The writer once worked in an establishment where several hundred plants were grown for their cut "blooms." As it may interest some of the readers of GARDENING or better yet induce some one who knows a better way, to tell us of it, I give the method of growing them in the place referred to. When the heads or bracts had been all cut about the holidays, the plants were "heeled in" under a bench in one of the houses where they would be shaded from the sun, and free from drip from the bench overhead. They remained there until the first week in June. They were then taken up and pruned back to one or two eyes from the old wood. The strongest canes were allowed two eyes, the weaker ones one.

The soil used was sifted or screened, and a liberal allowance of well rotted manure which was screened also was added. To this mixture was added enough coarse sand to keep it open, and over all was spread a moderate dressing of a fertilizer, "Blood and Bone." The effect of this last ingredient was plainly visible in the vigorous growth of the plants, their dark green leaves and in the deep color of the bracts or heads. The potting material having been thoroughly mixed by repeated turnings, the plants were potted in it. A few pieces of broken pots were laid over the hole in the pot, and on these was put a handful or two of coarse rotten manure, and then some soil. The plants came next and more soil was worked between the ro ts and pounded in firmly with a stick, sufficient space was left at the top to hold enough water to moisten the earth in the pot, so that in watering it was only necessary to fill up this space. The plants being potted were placed on a bench in one of the houses for a couple of weeks, until they made a strong start to grow. They were then taken outside and the pots plunged three fourths of their depth in the ground, in an open, sunny place, and far enough apart to prevent crowding as they grew. All weak growths were removed as they showed themselves, nothing being allowed to stand that did not promise a head of bloom. About the middle of July a few of the very strongest canes were topped, which caused them to give two heads. The pots were frequently turned around to prevent the plants from rooting through the bottom into the earth, as this would check the plants when taken up for housing.

This housing was done from the 10th to the 15th of September. A deep bench was filled up with soil the same as before, but not screened. The plants were brought in and turned out of their pots and planted out in this bench, erect if there was room, and if not they were laid down and the balls covered with soil. When all were in, they received a good watering and as they grew, an occasional syringing from the hose. They never failed to respond to this treatment. Heads were cut measuring 21 inches in diameter, while the bulk of the cut was over 16 inches and of a deep rich color. When the crop was sold the plants were lifted from the bench and heeled in as before without being pruned. It is important that the drainage be good where they are plunged as too much water will be injurious, especially in time of much rain. In planting the poinsettias in the bench, they were allowed when laid down to overlap each other three fourths of their length, as soon as they began to grow, every cane turned up and occupied its proper space. Many of the plants required three gallon pots, being so large. P. F.

SANDER'S BOUGAINVILLEA.

This is a dwarf form of the well known *B. glabra*, and was recently introduced to us by Sander, the orchid man of England. The bougainvilleas are gorgeous, vigorous, woody vines, but more of a shrubby nature than of a wandering disposition. *B. glabra* and *B. speciosa*, both from Brazil, are the two species in common cultivation. While they behave nicely out of doors in summer they like warm quarters in winter. Their flowers are comparatively slender, tubular and of themselves have no striking beauty, their great floral beauty, like that of the poinsettia, consists of the vivid purplish rose bracts that surround the blossoms. Sander's bougainvillea is a dwarf or shrub form of the viney parent, and an exceedingly desirable one. It is easy to grow, and much more accommodating to cultural conditions than its more spreading typical relative. It also blooms with moderate freedom, and by restricting its pot room and humoring it as regards feeding, watering and resting we can have it in bloom at most any time, and we can easily grow it as a big house plant. Although it was quite expensive last year, it is now offered for sale at nearly the price asked for geraniums.

The Fruit Garden.

BERRIES IN JUNE.

Fruits and vegetables are composed mostly of water. The fruit grower should then know how to guard against seasons of drouth and preserve the natural moisture of the soil. This can be done in two ways. First.—By irrigation, which is practicable only in certain favored localities by ditches and canals and by various pumping devices, pipes and drains, necessarily limited in extent, and then only with considerable expense. Second.—By retaining moisture already in the soil by mulching. This may be practiced by all. Well prepared ground receives sufficient moisture in spring to fully mature the largest crop, Tons of moisture from every acre are escaping daily in the growing season.

The best and most practical way to preserve this moisture and place it just where it is most available for plant use is by frequent shallow cultivation, forming a fine earth mulch. This applies to gardens and all hoed crops. Where soil cannot all be cultivated as with small fruits then manure, leaves, straw, clover, marsh hay, or any material to shade the ground and retard evaporation.

With coarse mulch, close around fruit plants, and a fine earth mulch between the rows, large crops may be carried safely through severe drouths. Commence at once and continue until products are mature.

The new spring planted strawberry plant should not be allowed to bear fruit the first season. Pick off all fruit stems as soon as they appear.

Three methods of training the strawberry are in use. The hill system, where all runners are removed. The narrow row, where only part of new runners are allowed to form plants; and the full matted row, where plants are allowed to fill all the space, excepting a narrow path between rows. All have advocates and all have special merits, depending on soil, climate, variety and grower. The full matted row is most used, being easiest to manage. Guard against having too many plants in a small space. They consume moisture, suffer from drouth and produce small berries. Each plant should have from four to six inches square space in which to grow and mature its fruits.

When new canes of the raspberries and blackberries are 15 or 18 inches high, pinch off the top about three inches. This will cause side branches to grow, making well formed bushes, and greatly increase the bearing surface of the canes.

Sparta, Wis. M. A. THAYER.

PEACHES AND CHERRIES.

Peaches thrive in Philadelphia city gardens and last in a healthy condition for years. There are trees there 15 to 20 years old. A few years ago our State Horticultural Association published a list of the most popular sorts, obtained through answers to inquiries sent to every county in the state. It was arranged in three sections, early, medium and late. I will name three of each arranged in the order they were preferred. Early—Mountain Rose, Alexand r and Amsden. Medium—Crawford's Early, Oldmixon and Stump the World. Late—Crawford's Late, Smock and Salway. I would say in regard to this list, Alexander is much earlier than Mountain Rose. If not desirous of a very early one I would prefer the latter, a white fleshed, excellent variety. All the sorts named are freestones. As a rule, the largest varieties are the late ones; and most of those bought as canned fruit are of this class. A second three each, early, medium and late, from the Pennsylvania list would be Troth's Early, Waterloo and Wilder; Foster, Early York and Susquehanna; Morris White, Wager and Ward's Late.

Is it as well to plant the stones and raise one's own peach trees? Yes, it is just as well, when to have a particular kind to ripen at a certain season is no object; and seedlings are generally vigor-

BOUGAINVILLEA SANDERIANA.

ous and long lived. As a rule, a seedling is good for something, sometimes very good, and rarely good for nothing. Peaches do not like to be in wet, badly drained ground. But because they are often found in neglected orchards in the peach growing states, do not get the idea that they want no good food. Feed them well and do not let them overbear.

Letting the trees go unpruned results in the young, fruit bearing twigs being all on the ends of young branches. Just think of the empty space the branches of such a tree spread over, which ought to be occupied by fruitful twigs! Commence to prune the trees from the start. In the summer while the trees are growing, pinch off the ends of the strong shoots, to force out the side ones, and in the winter prune a little here and there, when it will result in making a bushy tree.

Our fruit growers here do not look on the cherry as such a sure fruit as the peach. Not but what it blossoms and bears regularly, but between the curculio and the birds the fruit has a hard time of it. Then, too, some of our fruit men say the tree does not do well on the Mahaleb stock, and that they prefer the Mazzard, but this seems something of a local complaint so far, the Mahaleb being preferred by a great many. To refer to our State Horticultural Association's report again, I find the cherry list stands thus, preferred in the order named: Hearts and Bigarreaus—Black Tartarian, Governor Wood, Napoleon, Yellow Spanish, Black Eagle, and Ohio Beauty. Of Morellos and Dukes—Early Richmond, May Duke, English Morello, Montmorency, Reine Hortense and Late Duke. For a very early kind the Early Purple Guigne should be planted. It is so early that it seems the blossoming is hardly over before ripe fruit appears, and it is a good kind, too. And for a late one take the English Morello. It is the only one of a large collection noticed that escapes the robins. It ripens here after June, when the birds find abundance of wild ones ripe and other fruit besides, hence this Morello escapes them. It is a satisfactory sort, too, in hanging on the tree a long time without decaying.

The cherry does not escape with so few enemies as the peach. The curculio, so destructive to the plum, is its enemy as well, and has to be met by sprayings with insecticides, as recommended for the plum. The stung fruit does not fall as in the case of the plum and the apple. The rot is a well known evil, destroying great quantities of fruit. Spraying of the trees, while not curing fruit affected, prevents the spread of the fungus spores, and is to be recommended, and it should be commenced before the leaves unfold, to destroy the fungus which may have lived over winter in the twigs and other places.

Philadelphia. J. MEEHAN.

PEAR BLIGHT.—H. B. writes: "On two of my pear trees the leaves turned black last fall, and I cut the branches off into the trunk; this spring young leaves started out nicely, but they have now turned black. Should I dig out and remove these diseased trees and replace with healthy ones, or would the young trees become diseased?" *Ans.* By all means root out the diseased trees, carefully removing all pieces of roots left in the ground, then remove the soil from where the old tree grew and replace it with fresh soil; now replant with new healthy stock. In renewing the soil it is enough to throw out a load of earth from each tree hole a little to one side, and throw back from there into the hole enough soil as an equivalent; this saves carting. Our experience has proved satisfactorily to us that young pear trees planted in the same holes from which blighted specimens had recently been removed soon took the disease themselves.

Miscellaneous.

XANTHOCERAS—PINK CHERRY BLOSSOMS—EARLY COSMOS.

1. I want to tell you my experience with the seed of *Xanthoceras sorbifolia* which you kindly sent me last fall. I planted eight seeds in a small grape basket set to the rim in a cold frame according to previous direction given to readers of GARDENING. This was on September 26. November 25 I found one of the seeds had sprouted, but on attempting to examine it too closely inadvertently broke the sprout off. This has since lingered along, but will probably never amount to anything. All the others came but one and I have now five seedling plants. Four have fine green foliage. On the other the foliage is not so abundant and it is of a light straw color. That it should continue to keep this color, is rather curious is it not? I propose shortly to transplant these seedlings to such position as I expect to keep them in permanently, and make provision to shelter them during the winter. This is according to your previous directions I think?

2. Among the curious effects of this season's phenomenal weather, we have had *pink* cherry blossoms and (3) what I consider still more rare, I now have in bloom cosmos. The seed was planted indoors between the middle and last of February. The variety was the Giants of California, but both plants and flowers are small. H. R. V.

Philadelphia, May 20, 1896.

1. Glad to know that you have been so successful with the xanthoceras plants. Yes, plant them to permanent quarters. The yellow-leaved plant is not strange, such things often occur among tree seedlings, it will probably die.

2. Something we had not before heard of.

3. Nothing uncommon. No doubt your cosmos plants were pot grown or otherwise restricted in root room, which enervating condition is almost sure to run them to bloom; after they are planted out and start into vigorous growth, and the buds now formed have all opened, probably the plants will stop flowering and devote their complete attention to growing, till next September or October, when they will return to blooming in good earnest.

MULTIPLIER ONIONS.—E. J., Wachapreague, Va., asks; "How should I raise sets of the Multiplier onions? Do you merely let the onions stay in the ground and then separate them as you do garlic, and if so how long do you let them stay in the ground?" *Ans.* Plant the sets in rows a foot apart in earliest spring. If you want them for use, pluck and use them as soon as you think the young green onions are big enough to eat; but if you want them for sets, let them alone to mature, when instead of forming one bulb only all the larger ones will split up into a nest of many bulbs. If you are growing for sets, at planting time use the larger sets, as these are almost sure to multiply, the smallest ones may not the same season.

GARDENING fills a niche no other horticultural can or does at present. It is unique. J. B. O.

Pennsylvania.

GARDENING

WILLIAM FALCONER, Editor.

PUBLISHED THE 1ST AND 15TH OF EACH MONTH

— BY —

THE GARDENING COMPANY,

Monon Building, CHICAGO.

Subscription Price, $2.00 a Year—24 Numbers. Advertising rates on application.

Entered at Chicago postoffice as second-class matter.

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All communications relating to subscriptions, advertisements and other business matters should be addressed to The Gardening Company, Monon Building, Chicago, and all matters pertaining to the editorial department of the paper should be addressed to the Editor of GARDENING, Schenley Park, Pittsburg, Pa.

GARDENING is gotten up for its readers and in their interest, and it behooves you, one and all, to make it interesting. If it does not exactly suit your case, please write and tell us what you want. It is our desire to help you.

ASK ANY QUESTIONS you please about plants, flowers, fruits, vegetables or other practical gardening matters. We will take pleasure in answering them.

SEND US NOTES of your experience in gardening in any line; tell us of your successes that others may be enlightened and encouraged, and of your failures, perhaps we can help you.

SEND US PHOTOGRAPHS OR SKETCHES of you flowers, gardens, greenhouses, fruits, vegetables, or horticultural appliances that we may have them engraved for GARDENING.

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WILD FIRE PINKS (*Silene Virginica*)—Oh how lovely! Scattered hither and thither, all over the almost perpendicular, high rocky banks in Allegheny county we beheld, from the railroad train windows, the other day, these vivid beauties in all their dazzling glory, and bigger and brighter and lovelier than we ever saw them before. And wonderful, there they grew fastened between the laps of the shale rock, exposed to sun and wind, and where to any outward appearance no soil or water could be within their reach. But like all other true rock mountain plants their roots penetrated several feet back through the chinks in the rock, into the cool hill side. The plants were in big tufts, a foot and more high and across. It is a perennial and a gem in the garden, too.

READERS will confer a favor on the publishers by mentioning GARDENING every time they write an advertiser. It is only by this means we can demonstrate the value of our columns to reliable firms, which are the only ones we can admit.

A BOUQUET OF SHRUB BLOSSOMS.—On our side table is a bunch of the very dark reddish purple flowers of *Weigelia Lavallei* with plenty foliage and two sprays of the double flowered *Spiræa Cantonensis* (*Reevesi*) in the side of it; the effect is very pleasing, especially with lamp light, and the flowers last well.

THE WHITE STONE CROP (*Sedum ternatum*).—How pretty it is now in our rocky woods; it mats upon and overhangs the ledges and runs upon the otherwise bare surfaces; indeed, although a humble plant it is one of our most noticeable seasonable flowers. And like many another wildling, the child of adverse natural conditions, it is wonderful how readily it takes to good ground and garden care. Get it,—gather lots of it and plant it in your rockeries. You will like it.

FANCY CALADIUMS.—Many of you may remember a magnificent collection of fancy-leaved caladiums that were grown and exhibited at the World's Fair, from Brazil. Scores of them were entirely new to us and showed a distinctness in texture and a delicacy and vividness in coloring that we had never before beheld in the race. At the end of the fair these caladiums passed into the hands of Mr. Fred. Kanst of South Park, Chicago, and Mr. William Hamilton, Supt. of Parks, Allegheny City, Pa., and these gentlemen have kept them strictly to themselves ever since. We called on Mr. Hamilton the other day to see the caladiums, and certainly they were very beautiful, and he was very proud of them.

THE DEERBERRY OR SQUAW HUCKLEBERRY (*Vaccinum stamineum*).—When riding through our rocky woods a few days ago we came upon a patch of this little shrub in full bloom, and what a sweetly pretty little bush it is with myriads of bell-shaped, silvery white, little nodding blossoms hanging gracefully from its branchlets. It is a showy and elegant little plant of charming beauty, and although not at all abundant in our woods, it is by no means rare. But in cultivation we never find it, great is the pity. Nurserymen, so far as we know do not keep it; collectors, however, can get it for you. If you come upon it in the woods yourself, and wish to dig it up, be sure you take the sod deep and wide and unbroken, for the plant is impatient of injury to its roots.

CRATÆGUS MOLLIS.—In the *Gardeners' Chronicle* this tree is mentioned as being in flower at Kew, and the earliest of all the American thorns to burst into blossom there "some of the trees being masses of bloom from the bottom to the top." True it is a beauty both in the garden and in a wild state, and we are delighted to find it wild and in tolerable abundance in Schenley Park, where it grows on the sides of the ravines, especially where there is a little more moisture and good living than its near relative *C. coccinea* gets. The latter is very plentiful here growing on bare, dry, sterile clay hill sides and slopes; and although it is less floriferous and less beautiful than *mollis*, for our purpose it is by far the most useful of the two, we want to use it in clothing our great naked banks, and hillsides.

THE SCARLET TRUMPET HONEYSUCKLE.—Riding through the mountain suburban towns the other day in several old gardens we observed large bushes of this vine and also trellises heavily covered with it, its flowers standing out in vivid brilliance against the green foliage and neighboring trees and shrubs. This honeysuckle (*Lonicera sempervirens*) is a common wild vine in the thickets and margins of woods, and also it is collected in the wilds and cultivated in gardens, making a very decorative plant. On Long Island, however (and it grows wild in abundance there too), it used to become so much infested with aphides in spring and early summer that we got very little good of its blossoms, how delightful it is now to find it in its highland home in such flourishing condition, without insect or blemish. Down in our note book it goes for next fall's planting "*Lonicera sempervirens* and its variety *fuchsioides*," the latter is more showy than the type.

PREPARING SHRUBS FOR WINTER FLOWERS.—We shall use hundreds of shrubs for forcing in the greenhouses in winter, and now is the time to get them ready. These shrubs consist of weigelias, spiræas, flowering currant, xanthoceras, deutzias, and the like, and they are now 2 to 4 feet high, bushy, and grown in nursery rows, and far enough apart that they do not touch each other. We have marked a lot of the healthiest and stockiest of them for forcing, and we are now cutting out the flower sprays from these so as to give the young shoots a better chance to get ripened and thereby become firmer and better for next season's blooming; and with a sharp spade we make a deep cut around each plant, so as to sever far wandering roots and thus cause the plants to make fibrous roots closer to the bole of the plant so that when lifted and potted the shrubs suffer less from the operation than they would were the long-extended roots left unsevered.

FORESTS VS. PARKS.—Dr. Edward E. Hale writing in the *Pittsburg Dispatch*, May 31, says: "We have now a school of hybrid landscape gardeners to whom the first idea is, when a fine piece of God's work is given into their charge, that they must drain it—and subdrain it—and skim off the top of it, and substitute for ferns, and grass, and moss and wild flowers, the glories of asphalte and broken stone. * * Fortunately for us in America there is an escape from all this folderol and nonsense. You are only to say that you are to have a 'forest' without any reference to the 'park' and you may give to your people all the joy which the good God gives in his open country, and you need have none of the fuss and feathers and red tape * * of the 'park' garden. * * In a forest you may leave the beautiful lines which nature and the God of nature have been tracing these 33,333,333,333,456 years, seven months and eight days since the day when the latest geology teaches that the world began to fly in a separate orbit. But if you have a park you must shave off this pretty bed of anemones, you must fill in that hollow, and cover the trilliums in it, you must cut down that clump of elæagnus no matter if it be the only clump within 20 miles because an avenue runs that way on the plan. But if you call your pleasure ground a forest, why, the dear trees may grow just where they were planted and as they were planted."

NOW DON'T.—The horticulturist at one of the state experiment stations writes to us to know what are the best bulbs to force for market, which of certain cities named we consider the best market, and what firms in that city we would recommend as being the most reliable to send shipments to. This being a strictly commercial question should have been sent to the *American Florist* or the *Florists' Exchange*, but as it has come our way and we have pronounced ideas on such

matters we gladly reply. Our answer is *don't you do it.* Neither the tax payers of your state nor the citizens of the United States ever meant to turn their experiment stations into commercial money-making florist establishments. Government and isn't given for any such a purpose. Of course you will urge that your state experiment station in running a commercial florist business in teaching the students a new, important, and profitable trade. For mercy's sake pipe that little tune to the marines that they may dance, you cannot snare old birds by such empty chaff. To begin with the principle is wrong and contrary to the intent of the Government in supporting experiment stations. were it otherwise the name "experiment" would be a misnomer. You cannot insist that it is for experiment's sake you wish to embark in this, because you came to a hard-shell old practical for advice about the most tested and approved kinds of plants to grow. You are the teacher at the experiment station, and you admit that you know nothing at all about the matter you wish to undertake and are willing to accept payment for. How can you conscientiously pretend to teach our children what you yourself don't know?

RHODODENDRONS, WHY DID THEY DIE?

A year ago a lady planted a lot of rhododendrons in her garden, but they all died last winter, and meeting us the other day she asked "Why did they die?" "Because you neglected them" would have been the brief truth, but courtesy compelled us to put it in this way, "drouth last summer and fall." Now this is a pertinent question. Imported rhododendrons arrive here in spring, say middle of April, each plant having a compacted ball of roots. At that time the ground is mellow and moist and we set out the plants carefully, firmly, and otherwise properly, then leave them alone to live or die as they may choose, thinking we have done our duty to them, and should any evil overtake them, we seem to feel that we are justified in blaming the nurseryman from whom we bought the plants. But that is unjust, we ourselves are the culprits. In planting have the ground in perfect readiness all deeply dug and leaf soil mixed in with it in the places or holes where you wish to set the rhododendrons. Now take the plants, and if the balls are in the least dry wet them by immersion so as to soak them to the center, let them drip for a while and then plant them. It matters very little whether you mulch them right away or wait for a month, but a mulching over summer will do them good because the covering on the ground will conserve the moisture in the soil and keep it cooler than would be the case in bare earth. In the open field by frequent and loose cultivation the same end is practically attained without mulching, but in the garden it seldom happens that we attend to individual shrubs as closely as we would to a whole row or block of them. About the end of May drouth is apt to set in and by the fourth of July the ground is apt to be quite dry for some inches deep, probably to below the base of the rhododendron roots. As rhododendron roots are exceedingly fine and susceptible to parching treatment they can't help suffering. But let the drouth continue till the middle or end of August and the soil is very dry a foot or more deep, it is worse and worse with the rhododendrons, and that they die is not to be wondered at; should they survive the drouth of summer, however, it must be in an enervated condition. Add these adverse conditions to those of a severe winter in which probably no mulching whatever had been given to the plants and the ground had frozen solid deeper than their roots, and then ask, "Why did my rhododendrons die?" "Well, what should I have done?" you may ask. Plant properly, then mulch the ground about the plants with tree leaves, strawy trash, lawn mowings, or the like, to keep it cool and moist during summer, and further add to these favorable conditions by thorough soakings of water several times during the dry periods of summer, and again add to the mulching in winter. Take care of the plants in summer and fall by never letting them taste of the pangs of thirst, and no doubt your rhododendrons will survive the winter with you all right.

The Vegetable Garden.

THE VEGETABLE GARDEN.

Now that the summer is fairly upon us and danger from frost is past, the most tender of vegetables may be sown or planted. But don't sow in wet weather nor plant in soaking wet land.

GLOBE ARTICHOKES are regarded as a fancy vegetable, still many people are very fond of them, and not only are they now grown in most pretentious gardens, but they are largely imported into our markets, being in constant demand for hotel and aristocratic tables. They are of the easiest cultivation and may be raised from seed, the seedlings bearing the second year, or they may be increased by division. The plants are not very hardy, but by mulching them well in winter we never had any difficulty in keeping them. Good ground, lots of room and clean culture are all they need, and as soon as they begin to bloom keep the flower heads cut for use. The French Globe is the commonest, and a very good variety.

JERUSALEM ARTICHOKES —All they now need is to restrict the plants to their respective hills; any stepping outside of such bounds should be at once cut down. If you want to get big tubers restrict your hills to one or two sprouts.

ASPARAGUS should be cutting nicely now. About New York it is grown white, that is by deep planting and moulding up the grass is bleached white, all except the tip; this is because the market demands this kind of grass, and there is no call for any other. The famous Oyster Bay asparagus is also of this kind. It is very good too, for if the weather be warm it is young and brittle. Here, however, both market and home gardeners grow green grass, that is they have their beds on the level ground, and they don't practice deep planting. Of course this gives us a very finely flavored and brittle grass, and withal it is the better way for private families to grow asparagus. We prefer cutting asparagus clean, that is cutting every spear of grass big and little as soon as it is big enough, and at or soon after the middle of the month stop cutting altogether; this gives the stronger eyes the opportunity of shooting up quickly and smothering the weaker ones, and in this way only big buds are formed for next year's crop, and not a lot of little ones that would produce many spindly shoots.

BROAD WINDSOR BEANS are liked by many, beans and bacon being a favorite dish. Gather the pods while the beans are young and before they make a black eye. Most people prefer Windsor to Long-pod Mazagan beans. They require good or somewhat heavy ground, and to be sown early, for our hot summers are too trying for late sowings.

SNAP BEANS.—Keep up a succession of your favorite sorts once a week if you want fresh green snaps but once in ten days may do the wax varieties if the ground is rich and somewhat moist. Hot weather and dry ground are trying on beans and hurry them past quick. Sow in rows 2½ to 3 feet apart.

LIMA BEANS.—We treat the dwarf varieties about the same as we do dwarf snap beans, that is sow them in rows three feet apart, but we thin out the plants in the row to 4 or 6 inches asunder. They come into bearing a little earlier than do the pole beans. Henderson's variety (which is a small Sieva) is a fortnight or more ahead of the others; in fact it is hardier and we sow it earlier than we do the true Limas. The spotted bean, Jackson's Wonder, is very early too, and a bean of good quality, but it cooks dark colored, a serious drawback to its popularity. If you have not already sown your pole Limas, better get them in now. Insert the poles in their places first, then dig the ground round about them loose and mellow; now plant the beans, say 5 or 7 around each pole and eyes down; planting so many gives you an opportunity of thinning out the weakest later on, and eye down is to lessen the tendency to rot which is sometimes the case when the beans lie flat in the ground. As soon as the vines begin to run tie them in to the poles—after a tack or two in this way they are likely to take hold and twine around the pole very well of their own accord.

BEETS if young and succulent are an excellent vegetable, but if hard or foggy in the heart they are not very palatable. For pickling we slice them, but for boiling to serve as a fresh vegetable we like them about the size of a hen's egg and boiled and served whole. It likes good ground. Sow now to succeed earlier sowings, but don't sow enough for a main crop, it is too soon, the "bulbs" would get foggy too quick. Sow in rows about 18 inches or 2 feet apart. Look out for cut worms. Poison them with a little bran mixed with some Paris green laid here and there

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in teaspoonfuls along the rows, but where no domestic animals can get near it; or look for the worms every morning and catch them beside the plants they cut the night before, and kill them. Gaps in the rows can be made up by transplanting some of the thinnings from the thick places into them. A large sowing may be made about the end of this month or first of next one.

BRUSSELS SPROUTS.—We like to make a sowing of these about the end of April and another about the middle of May, but if you have not done so, sow some at once; they may yet be in time. We like to get them in a month ahead of our winter cabbage. If cabbage is sown too early, say before the end of May it is apt to bolt or burst its heads open before winter, but not so with Brussels sprouts, in fact, on the contrary, if not sown till we sow our winter cabbage, many of them may miss making good stems of firm buttons. Plant them out as soon as they are big enough, setting them and otherwise treating them much the same as you would cabbage.

CABBAGE.—North of New York winter cabbage should have been sown before now, but even if not till now, it should heart all right yet. About New York we prefer delaying sowing till the first week in June. Sow in rows a foot to eighteen inches apart, and thin the seedlings a little after they come up, this gives us much stockier plants than when we sow them broadcast, besides it admits of cleaning and cultivating by the hoe. While we always grow some plain cabbage as Flat Dutch, for our table use we plant nothing but the Savoy varieties, for they are of very much better quality than are white cabbage of any kind. As soon as the plants raised a few week ago are ready to set out and you have a little empty ground get them planted; they are for late autumn use.

CAULIFLOWER.—If your early cauliflower wilts in the warm sunshine it is almost a sure sign that there are maggots at the root and that these wilted heads will be a failure. When they are very bad we root them out and plant the ground with lettuces, beans, or beets. We put in a good sowing of Snowball and Algiers cauliflowers when we sow our winter cabbage for fall hearting and sow again about the end of the month to carry us into winter.

CARDOONS are a vegetable somewhat like globe artichokes in general appearance, but it is the tender bleached heart leaves we eat. The cardoons are grown in spring either where the plants are to remain all summer, or in pots in frames and transplanted out of doors, in rows 3 feet apart and one to two feet asunder; encourage growth by means of rich soil, moisture and frequent cultivation, and after midsummer, gather the leaves together into bunches like a head of celery, but not very tight, else the inner ones will rot; the object is to get the young inner leaves to grow up in a straight, white, succulent bunch, for this is the portion eaten. To attain the same object, or perfect it rather, about the middle of September we tie the heads up tight, and either earth them up as one would celery—a difficult matter—or with straw rope, bagging or something of that sort tie them close and dark. At best, however, it is one of the stereotyped vegetables we can easily do without.

CELERY for market is generally sown about the end of March, so as to have big salable plants to dispose of this month, but those who grow it for their own pri-

[CONTINUED ON PAGE 286.]

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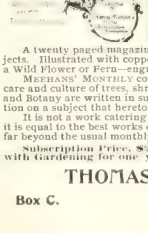

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vate use usually sow it in April about the 20th is a good time. It is often hard to get up a good stand of celery, and we may have to sow it twice or oftener; an overdry surface of the ground is quite killing to the sprouting celery. Should your earlier sowings have been a failure, don't hesitate to sow some more at once. Give the ground a good soaking of water before sowing; and after sowing shade it till the seedlings appear. A thick seed bed is sure to give you weak spindling plants; better thin out your seedlings and enjoy the benefit of it in steady well-rooted stock that transplants readily and grows away from the first. Decide upon what ground you want to save for celery and as soon as it is empty get it planted. Celery loves deep, rich, moderately moist soil.

CHERVIL.—Sow a little of it in a row or patch in common soil but in a sheltered spot; it is very nice for flavering. Make two sowings a year.

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SPIRÆA ANTHONY WATERER AND ENGLISH SPARROWS.

I do not know whether or not Mr. Anthony Waterer ever did anything to excite the ire of that race of little fiends incarnate, the English sparrow, but it is a singular discovery I have made that they seem to have sworn enmity to the spiræa named after him. Twelve plants set out lately with other things in what was to be a show bed, have been so disfigured, some being entirely gone, that the symmetry of the bed is destroyed. The sparrows do not eat the plant, neither do they use it for nest building, but it seems purely wanton and malicious destruction on their part. The twigs are constantly being nipped off clean, and left scattered over the beds and upon the sheds over the piazzas. What is the cause of this strange action on the part of the sparrows, when nothing else whatever in the garden is destroyed in this way, I cannot understand, but I write this as a caution to others setting out young plants of this novelty. [Sparrows or no sparrows we are going to plant it largely, it is too nice a little shrub to omit.—ED.]

L. C. L. JORDAN.

GARDENING seems to me very perfect in its line; each number is read with almost as much interest and eagerness as if it were a first-class serial novel. May it long continue in the present editor's hands.

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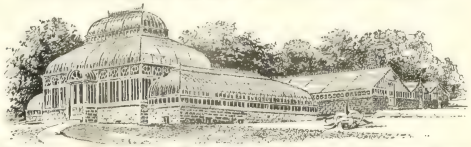

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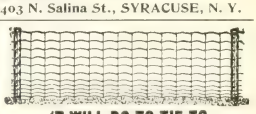

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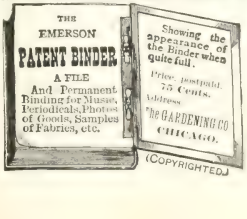

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GARDENING

Vol. IV. $2.00 A YEAR 24 NUMBERS. CHICAGO, JUNE 15, 1896. SINGLE COPY 10 CENTS. No. 91.

A BED OF PETUNIAS

The Flower Garden.

COMMON FLOWERS.

Our illustration is engraved from a photograph of a bed of petunias in a Chicago garden taken last summer. The bed was mounded up, and in the middle was a tub rising above the mound, and all filled with petunias. The plants grew well and made a bright show all summer and fall, and that, too, with very little care. Taking everything into consideration we have no more showy continuous bloomer than the petunia. Among the dwarf striped we have some very beautiful varieties and they are profuse and continuous bloomers, then we have kermesina, superbissima, and other large plain and frilled flowers that are quite attractive, and the bigger flowered ones called giants of California. All are easily gotten up from seed. By the same means we can also get up a stock of double-flowered varieties, but because of the uncertainty of the quality so obtained and percentage of good flowers we usually increase our double petunias from cuttings.

The petunia is everybody's flower and it will grow most everywhere. Among other common flowers that brighten up a yard wonderfully are nasturtiums, portulacca, French marigolds, stocks, China asters, mignonette, globe amaranths, sweet alyssum, poppies, Drummund phlox, balsams, pansies, and scarlet salvia, and all are easily raised from seed.

PLANTS IN BLOOM THE 9TH OF JUNE.

Truly, June is the month of roses, for everywhere you look in the garden you see roses. A hedge of Madame Plantier rose we have here is a great show just now; it is about three hundred feet long, six feet high and about the same through. This rose is easily grown. While the others in the garden are infested with insects this rose is comparatively clean. This hedge has been planted about four years. Among other roses in the garden Climbing Jules Margottin is quite conspicuous; it is good in bud or full flower. The Dawson rose is a mass of flowers, and it is rather nice too with its showy

panicles of pink blossoms. Climbing Victor Verdier is also good. Clothilde Soupert is a fine polyantha rose; its clusters of white flowers are very pretty.

Ther German irises are nearly past, but what a show they have been! We have a great many varieties of them and they are all good and well worth a place in the garden, and they fill up a space between the spring flowering bulbs and the flowering of the summer bedding plants. The Spanish irises are also nicely in flower; these are unlike the German; their flowers are smaller and stiffer, and somewhat resemble those of the English irises. The latter will not be in flower for ten days yet. Ixias grown in a frame alongside the Oncocyclus iris have flowered splendidly; they seem to do better in this way than they do in pots; they often damp off at the neck when grown in pots. Give them water very sparingly.

The fox gloves are at their best, and the Canterbury bells will be in fine flower in a few days. Pansies are still good. Forget-me-nots are past, except the ever-blooming one, *semperflorens*.

The sweet williams are in good flower, and a nice show they are. These plants are from last August's seed sowing; they are best raised new every year.

The double pæonias are in good flower; an importation of them made this spring shows some very good flowers.

Campanula persicæfolia grandiflora and its white variety *alba* are now in good flower; this is really a nice thing, and it will grow either in the shade or open, and is easily raised from seed.

The delphiniums are making a nice show, but they will n t be in full flower for a week to come. Both the single and double pyrethrums are in flower; they are very useful for cutting, as they last so long. The potentillas are beginning to open their blossoms. These are a beautiful class of plants, and should be more grown than they are now.

The Oriental poppy is giving us plenty of conspicuous flowers. *Veronica circeoides* with its carpet of blue is now in fine flower; it makes a nice edging plant, as it grows only two or three inches high. *Anthericum Liliago* (St. Bernard's lily) was very beautiful, but is now past. The border pinks are in good flower; the old plants that were left in the border all winter came in first; the cuttings of last September will soon be in flower too.

The verbascums are giving us plenty of their long spikes of yellow flowers. *Verbascum phlomoides* is very good; it grows about five or six feet high; the spike of flower is branching, which adds much to its beauty. *V. pannosum*, *V. Chaixii* and *V. Olympicum*; the latter has massive silvery leaves, and all are striking when in bloom. Early sown ten-weeks stocks and marigolds are now in fine flower, especially the stocks. Antirrhinum cuttings that we wintered over in a cold frame are now nicely in flower. DAVID FRASER.

Mahwah, N. J.

FLOWER GARDEN NOTES, JUNE 8TH, 1896.

SWEET PEA CUPID.—Out of two packets of seed (about 30 seeds), I have but half a dozen plants. I think this is the experience of many. Some of the seeds were sown in April, others about the middle of May. I planted them not much more than an inch deep, but kept the ground moist. Bride of Niagara and other varieties sown six or eight inches deep all germinated well and are making good growth, while Cupid seems to be a loiterer. The climbing ones were not planted any sooner than the first batch of Cupid.

HARDY PYRETHRUMS.—The single ones are far the handsomer. A packet of seeds sown now will make good blooming plants for next spring, and after that they can be divided so freely that a whole garden might soon be filled with them. Planted in masses they make a gorgeous display for two or three weeks. Many persons are familiar with white, yellow and blue daisylike flowers, but these pyrethrums, in all shades of pink and red with yellow centers, strike the eye of most observers as a beautiful novelty. After flowering I cut them entirely to the ground, and get a scattering bloom later on. They grow well with me in ordinary soil and full sunlight. The finely divided foliage is handsome at all times and makes a fine border. The flower stems grow about two feet high, but the plant is not much more than eight or ten inches. Cut with long stems they are very graceful and last long in water.

DICTAMNUS FRAXINELLA ALBA AND RUBRA.—When once established in ordinary soil and getting a few hours' sunlight every day, these are most desirable and showy plants for about two weeks. The white, in my estimation, is the handsomer, the grand profusion of large spikes of white flowers contrasting well with the deep green pointed leaves. Like the pyrethrums, they flower the latter part of May into June, and neither have any insect enemies. Is it a fable or a fact that the flowers emit a gas on close warm nights, which will ignite if lit? I have never succeeded in proving the assertion. I have never been able to get seed of this plant to germinate, either self-sown, fresh from the plant or bought from the seed man. If it is desired to save the seed, it is best to tie something over the pods, as they often burst most unexpectedly and scatter the seed far and wide.

KÆMPFER'S IRISES.—I can begin to feel the flower stalk already, which is early, as they generally bloom the last part of June into July. Surrounded as they are by a strip about three or four inches high of galvanized sheet iron, I can flood them every day, and at the same time grow in the enclosure such moisture loving plants as hedychiums, sarracenias, etc. They have now been four years in the same place and ought to be transplanted, I suppose. Ought they? When must this be done so as not to lose the blooming next year, and must any of the rhizomes be removed?

Bergen Co., N. J. L. C. L. JORDAN.

A SPRING WILD GARDEN.

Even in some of the gardens little attention is given to spring bulbs by reason of the trouble they occasion in interfering with the summer schemes for planting the beds and borders, thus necessitating taking them up, drying them off, etc. All this may be avoided, and we may have, grow, and enjoy a perfect host of spring flowers and decorate the garden with permanent spring pictures of exquisite beauty, gay blooms set in a verdant foil of green, looking infinitely more lovely than when drilled into lines or circles contrasted with bare beaten earth and bespattered with dirt should rain fall at the time of their blooming. The spring season is short at its best, and the flowers that usher it in have a brief and gay period and are past all too soon. Their flowering may be prolonged, however, by planting them under conditions more pertaining to those they obtain in a natural wild state. Writing this recalls to mind wild garden pictures enjoyed in bygone years that began with the snowdrop in January and ended with the poet's narcissus in June; a five months' procession of earth's fairest, and best, coming and going in their own sweet and simple way with never a hard to tend them. The gradual growth and slow slow developing beauty of an English spring sustained this display, but although climatic conditions bring sharp limitations to bear upon the blossoming of things here we want them all the same, and a wider range of choice in the site and disposition afforded by the wild garden will also help us to prolong their display.

Glory of the snow is the popular name for the *Chionodoxa* family, but the only flowers of these I saw this spring came through the snow during the first week in April, in reality the first gleam of spring's coming glories, but scorched beyond recognition a few days after with a sun of summer fierceness shining down on the bare earth that brought them forth. Had they been in the cool turf with the friendly shade of a shrub or tree many more days of lasting beauty would have been granted them. There is no need to further accentuate the points we have to gain—there are none to lose—in making a wild garden of the spring flowers, so I will briefly pass in review the chief families, as time and space will hardly permit of enumerating individually this vast army of nature's lovely children brought from all the temperate parts of the globe, enlisted to administer to our pleasure and gratify our desire for the possession of things beautiful, and marshalled ready for our use.

Snowdrops and crocuses will rise to greet us as soon as the earth's crust is softened if they are anywhere about the garden, while scillas and chionodoxas are prominent in the van of the advancing army. Take a few thousand of these, their cost means little, plant them in the grass, some in sun and some in shade. The winter aconite too must not be omitted, and there is nothing to equal it for making a spring carpet of flowers and pretty leaves right under low spreading trees whose summer shade is too dense to allow grass to grow. The European dog's tooth violet, but especially the fine forms that have been raised in the Dutch nurseries, should have a prominent place in the spring wild garden; give it an open sunny spot, and if up on a little slope this will the better display the exquisite colors of its varied leaf marblings, while its flowers range through lovely tints from white to rose pink. The grape hyacinths will thrust their club-like spikes of showy blooms through the matted turf without ado, and show much additional beauty uprising from a tender green carpet. The Apennine anemone in the garden grass is just as happy and flowers as freely as in high Alpine pastures.

One great family that should have special prominence is the daffodil or narcissus, and in this not only the world types but some of the very best garden varieties have been found to succeed equally as well in the grass as in rich garden borders. I saw last spring groups that I had helped to plant eight years previously and they were finer then than they had ever been, yet nothing had been done to tend them but the meadow in which they grew was grazed entirely some seasons and mown for hay in others. The daffodil family alone furnishes material for a series of dissimilar effects. I have planted numbers of varieties ranging from the common daffodil of English meadows up to some of the choicest garden creations as Emperor, Empress and Horsfieldii and all have succeeded. The

CRAMBE CORDIFOLIA AT EGANDALE, JUNE, 1895.

star-flowered narcissus forms of *N. Incomparabilis* and *N. stella* do equally well, the essential thing being to take some good sort obtainable in quantity as Stella, Cynosure, Golden Mary, Duchess of Brabant, etc., and plant a bold informal group of such distinctive kinds. The poet's narcissus with its chaste white flowers coming later as the grass grows tall, flowering as freely as the great daisies that now whiten the meadows. Here is ample material for a wild garden of any extent, as the groups may be proportionate to the area that can be set apart.

When to plant may be dismissed in a few words. At any convenient time when the bulbs are dormant from July to November. Nor does the way to plant involve a long dissertation on abstruse details. The plantings should be in groups of informal outline whether small or large. Any garden conventionalities in the way of squares or circles will look hideous if perpetrated in grass. Holes for the bulbs may be opened with a spade by cutting three sides of a square, the fourth or uncut side forming a hinge, the sod being raised and turned back. The bulbs are planted in the hole, from 3 to 5 of a narcissus, but double or treble that number of the smaller bulbs and the sod turned back in place and trodden down. A rough and ready method some may say, but a million flowers prove its efficiency in one wild garden alone I know, and each succeeding year adds to its beauty. To avoid regularity it is advisable to have all the holes for one group opened first and study the effect. If the distances appear too uniform close some up again, letting them be rather closely massed about the center and more thinly distributed in the outlying portions, suggesting a few stragglers from the main flock. Observation of natural groups of wild flowers will materially assist one to get the same expression and disposition in the garden. A. HERRINGTON.

Madison, N. J.

CRAMBE CORDIFOLIA.

This interesting member of the sea-kale family, commonly known as the heart-leaved cole-wort, has been more of a puzzle to me than anything I've grown. Robinson in his "English Flower Garden" speaks so highly of it that I concluded to try it. Seeds were started in the spring of 1893, producing in my trial grounds ordinary looking coarse-leaved plants of no ornamental value. The next year, having two vacant spaces in my shrubbery of say three feet each in diameter I planted a crambe in each open, and my trouble soon commenced. They at once proceeded to business, and threw out leaves of enormous size, which before the summer was over measured over five feet in width, crowding over everything. I was in a predicament, as there were choice plants in danger. So much for an amateur's ignorance of the habits of a plant. I saw at once that standing alone on the lawn it would produce a grand effect, but where it was it was decidedly out of place. That fall I chose a spot near a large rock at the base of which was a water-tap. I dug a hole two feet deep, and as wide, made a basin of coarse gravel at the water-tap to catch the drip, and connected it by three-inch tile pipes with the bottom of the hole, then mounded up the soil some fifteen inches above the ground level, banking up the sides with sod, the object being to raise up the plant so that its enormous leaves, which I anticipated, would show off to advantage. One plant was put in and protected for the winter. Early next spring—1895—it showed itself, and before the end of May it threw up four flower spikes. Here was a quandary. No literature at my command mentioned any especial features of its bloom. I imagined that if I let it bloom it could not produce its enormous leaves, and I started to cut them. After one was cut I repented and allowed three to remain, but my conjecture was right, as the leaves were under two feet in diameter, but on June 10, when photographed, it presented a magnificent floral picture. My private photographer, who, in addition to promising to "love, honor and obey" also promised to take pictures for me, was cast on a visit, and I had to call in a professional and have it taken when he was ready, not when the atmospheric conditions were favorable. As a consequence the picture does it an injustice. Outdoor photographs should be taken cloudy days or just before sundown, or wh n the object taken is in the shade, then the shadows do not conflict and detail is obtained.

The bloom stalks were seven feet high and branched over six feet in diameter. The individual flowers are white, small, numerous, and disposed in much-branched panicles. The rock covered with the Boston ivory, is seen to the left. After blooming the stalks were cut and the plant looked well the remainder of the season, the leaves not growing any larger. This spring the plant seemed to start all right and I looked for even an improvement on last year's grandeur, but in a short time the leaves turned yellow and drooped. Upon examination I found the heart of the crown rotted, the decay seeming to follow down the hollow bloom-stalk and reaching part way down the side roots. Just below this decay new eyes were breaking out. These roots were planted out elsewhere and some are producing plants. A blooming plant I gave to Lincoln Park acted the same way. The roots are long and fleshy and all broken ends left after removal produce a plant. To sum up my experience with this plant, it seems that the first year from seed it assumes an ordinary form, producing enormous leafage the second and blooming the third, after which it dies at the crown and reproduces itself from the old roots beyond the decay. Plants from broken roots bloom the second year. It has proved hardy even without protection. W. C. EGAN.

Highland Park, Ill.

MY GARDEN.

Our house and lawn face the south, the lawn sloping quite a little. I am very fond of vines. We have honeysuckles

(Halliana) *Clematis paniculata*, and a wild clematis. On one bed, or border, there are several varieties of iris, candidum lilies, platycodon, achillea, etc. This spring I bought a nice bunch of *Lychnis plenissima semperflorens* and am much pleased with it, it having been constantly in bloom. We have also a large clump of *Gaillardia grandiflora*. On one bed that is very much exposed to the sun we have had the two past summers a gorgeous display of California petunias. This year, thinking to have a change, we are trying phlox, but the prospect is not encouraging. The seeds failed to sprout, many of them, although we made several plantings. [We presume you mean *Phlox Drummondii*. We sow it in spring just as early in the season as we can get the seed into the ground, about the same day as we sow our sweet peas, mignonette and poppies, caring little if it freezes and snows after we get the seeds in, and never fail in getting a good stand of seedlings.—ED.] In the spring I always bed out those of my geraniums, heliotropes etc., that I do not care to keep over for winter in a bed by themselves and keep those intended for winter in their pots. My rubber plants, ferns, palms, with two varieties of imantophyllum, stand on the east side of the house, partly shaded by a fine maple tree. A large pot of an old-fashioned hydrangea stands with them but as yet shows no signs of budding. Since cutting it back in early spring I have read that "they should be cut back *after* blooming." What is an ignorant person to do when one book says trim in the spring, and after you have done it another book says you will cut off the buds if you do? Of course I ought to have written to GARDENING and found the right way. [That is just what you should have done. When GARDENING tells you how to prune, plant or otherwise treat a plant it usually gives you the reason for doing the work as it advises, besides its teachings are straight from the shoulder of practical experience, and not a plausible lot of gush fudged from old books and catalogues. But don't despair as regards your hydrangeas. Sound, plump buds borne on the old wood are usually flower buds; by this time, however, you should be able to see or feel the buds at the ends of the shoots, if there are any there.—ED.]

Most of my chrysanthemums died in the cellar last winter. My gloxinias are in the conservatory, and I am very proud of them. To-day one plant, crimson shading to pink, has twelve open blooms on it, with buds in all stages of growth; its leaves measure over ten inches in length by six in width. I have several varieties including spotted ones. You may remember of my sending leaves to you last year curled on the edge. This year, following your directions, there has been no such trouble. Four sorts of achimene are just coming into bloom. Begonias are resting. H. E. L.

Bristol, Conn., June 7, '96.

MR. BYRON L. SMITH'S GARDEN.

An afternoon of last week spent at the summer home of Mr. Byron L. Smith of Lake Forest, Ills., was full of interest. Mr. Smith is a very busy man, being president of the Northern Trust Co. of Chicago, and is largely interested in many other financial enterprises. He has wisely chosen ornamental horticulture as a recreation and relief from the mental strain incident to his position. While only lately having joined the ranks of the amateur brigade, he is pursuing a course, the results of which will be duly appreciated by all lovers of horticulture, and especially those whose homes are within the range of similar climatic conditions. He has set aside a large plot of ground, well ploughed and cultivated, in which he has planted five or more specimens of all the varieties of ornamental trees, shrubs and vines that may or may not succeed in his climate. For instance, in the maple, elm, and ash family, he has several of each of all the varieties he could procure in the eastern nurseries, and so on all through the different families. All are correctly labeled, both the botanical and common names, and ultimate height being given. His gardener, Emil Bolinger, has taken a great interest in the venture and will use his intelligent care in the preservation of all marks of identity. What a mine of information that plot of ground will prove to be in a few years, when the thorough test of hardiness and adaptability shall have been completed!

Among those I noticed as having passed safely through last winter, and not given in my list as hardy at Egandale, were the Chinese cork tree, *Phellodendron Amurense*, *Ulmus campestris* var. *Dampierrei* Dampierre's golden elm. *Ulmus campestris* var. *myrtifolia purpurea*, the purple myrtle leaved elm, which was much handsomer than the variety *Stricta purpurea*. Among the ashes was *Fraxinus Americana* var. *acubaefolia*, with golden blotched leaves. The Oriental plane, *Platanus Orientalis*, loses its tips but grows so strongly from the terminal side shoots that it promises to soon form handsome trees. *Cytisus Laburnum* var. *Parksii* was in good form. *Cedrela Sinensis* and the purple-leaved peach, *Persica vulgaris fol. purpurea* stood well. Among the shrubs, both *Corylus avellana* var. *purpurea* (the purple-leaved hazel) and *Deutzia gracilis* which have winter killed with me, were in good form. *Cornus Siberica albo marginata* seemed thoroughly satisfied with existing conditions, and promised to take the place of the variegated *Cornus mas*, which does not do well here. To my surprise I found *Daphne cneorum* in the open field in clay soil as happy as a lark, and I was informed that quite a bed of it is doing well in the bluff bank. I have been unable to grow it, but will try again. A wide public road divides the nursery from the home grounds proper, which is tastily planted with groups of sweet briar; the odor perceptible when driving by is refreshing. W. C. EGAN.

May 28, '96.

VIOLETS FOR SPRING BEDDING.

Would like to have you advise me. How should I treat the violet as a bedding plant for early spring trade? I am in the market garden business and raise some bedding plants for spring sale. If I could get them in the right shape by spring I could sell them all right. I would like to have them in bloom when I sell them. Would a cold frame be the best place to put them in? What time would you separate them and set them out, so to have them nice plants and in bloom by spring? W. S.

Otis, Ind.

Ans. If you mean the common fragrant violets such as are grown for winter flowers we should not advise you to grow them as bedding plants for the early spring trade because they pass so soon. Plants lifted and divided in August and then planted in cold frames and kept moist and free from runners make real pretty crowns that bloom in March and April. The bedding "violas" or tufted pansies as they are now called are fine for spring bedding and last from April till July. We sow them in August or September and prick them out three inches apart in a cold frame, where we winter them just as we do bedding pansies and polyan huses. They keep over in good condition, and in earliest spring we lift and transplant them to the beds or borders; indeed, if on raised beds we find they survive the winter out of doors well enough without the protection of a frame. In growing them for sale better have them in flats of 50 or 100 in each. If sown in flats in the greenhouse in January or February they make excellent plants for bedding out in spring.

BEDDING PLANTS USED AT WASHINGTON.

The largest number of any one variety of bedding plant used in the public gardens or parks in the city of Washington is, curiously enough, a trailing shrub, the variegated *Euonymus radicans*. Of this nearly 100,000 plants have been bedded out this spring. The cuttings of it are put close together in long narrow boxes about the end of September and placed in a cool frame; watering, weeding and airing, is all the attention they get until they are planted out.

The Madagascar vincas (*Vinca rosea*) are bedded out quite extensively, no other plant grows and flowers better than this. There are three kinds; one with pink flowers, another white with pink eye, and the third one is pure white. They are raised from home saved seed early in the spring indoors. They commence blooming in three inch pots and do not stop until interrupted by several degrees of frost. *Torenia Fournierii* is another favorite, its blue flowers resemble those of a mimulus, it has one drawback, however, seeds from last year's plants are apt to germinate too freely in the beds and make a lot of extra work weeding them out. [At Dosoris where we grew this little beauty for a dozen years, it never bothered us in the least as regards self-sown seedlings, this was because they germinated so late that they got hoed out or choked out. In fact *Vinca rosea* self sowed itself with more persistence and effect, but it too appeared so late in spring that it succumbed readily to cultural conditions. On the other hand petunias, coreopsis, etc., were a nuisance and all because they started so early. In Washington where the springs are earlier and the summers are longer these seedlings start earlier and are far more troublesome than they are as far north as New York.—ED.] In some of the parks good results have been accomplished by planting mixed beds with tall growing plants, such as the finer varieties of castor bean, yuccas, erythrinas, cannas, and the variegated eulalias, with some of the commoner bedding plants for an edging these beds certainly look well all summer and they require little outlay either for work or material.

Hydrocotyle sibthorpifolia is used as a low growing green bedder, it grows almost flat on the ground, the leaves are small and round. Fancy leaved caladiums are getting more and more attention every year. It has been found that they do better when the bulbs are put out without being previously started into growth. When planted in the dry state they grow very rapidly and make a good showing about as quickly as most other things. The bulbs which are started in pots before they are put out seem to

JAPAN TREE LILAC (*Syringa Japonica*).

get a check which it takes them several weeks to recover from. [And better still when the bulbs are planted out the young leaves grow up perfectly inured to the sun, wind and air, and are not injured because of too early or sudden exposure. This point applies to several tropical bulbous and tuberous plants, and so as to carpet the ground in the meantime till the caladiums appear we may cover it with pansies, spring mignonette, alyssum or other plants which we may pluck out when the caladiums need the room.—ED.] The variegated anthericums in three varieties are not so common as they deserve to be, as they stand a lot of rough handling in keeping them over winter. Fuchsias are a puzzle to most people here, they give glorious effects in the parks around London and Paris where they can be planted out in the full sun, but here they must be planted in the shade, where they do fairly well if they are kept in a growing state for a few weeks after being planted out by pinching off the ends of the shoots and treating them frequently to manure water. The new strobilanthes is quite a satisfactory plant, but it must be trimmed occasionally or it is apt to get out of bounds. Abutilon Souvenir de Bonn is one of the best of the new bedding plants; it keeps its color beautifully, which is more than can be said of most of the variegated plants when put outside. Crotons have been planted largely for several years here, they color up even better out of doors than they do inside. Cuttings are taken off about the middle of September and rooted without bottom heat; there is an idea that cuttings unless they have well colored leaves will not make well colored plants, but my experience is just the reverse, these cuttings naturally root more freely than those with highly colored leaves, and when planted out they color up just as brightly.

AT THE WHITE HOUSE.

On the south front of the Executive Mansion, the grounds are enclosed by a 4 foot high stout wire fence, that affords a capital place on which to train vines of different kinds. At the present time the Jackmannii and lanuginosa clematises are a mass of flowers, the fence is about 200 yards long and there are about seventy-five of these clematises on it, and one can imagine the effect. Plants of coccinea show up conspicuously at intervals. Later on in the season there is not a square foot of this fence vacant, it is covered by such plants as aristolochia, ipomœa, manettia, antigonon and stigmaphyllon. To any lover of flowers this is one of the most interesting spots in the whole city, as the plants are grown under the best conditions. Near one end of this fence and trained up so as to cover an entrance to one of the plant houses there is a large specimen of the Crimson Rambler rose that has given so much pleasure that the intention is to grow it more largely in the future. Just in front of the house are several round beds filled in the middle with crotons and edged with rows of the variegated anthericum and echeveria. Near the large fountain there are two immense beds filled with scarlet geraniums bordered with white flowered varieties and scarlet alternantheras; in each bed there are about a dozen tall standard lantanas which are quite effective. The finer flowered herbaceous plants are grown extensively, and they do magnificently. There are campanulas enough to satisfy a botanic garden. Delphiniums, aconitums and the native cardinal flower are growing side by side with the new *Tupa montana*, which has not bloomed as yet. The large fountain basin is filled with nymphæas, principally hardy ones; the large plants are in comparatively small stone boxes, yet the number of flowers on the plants all the time is wonderful. There are other two fountain basins on the grounds filled with a miscellaneous collection of aquatic plants all in the very best of health. G. W. OLIVER.

Botanic Gardens, Washington.

CAMPANULA PERSICIFOLIA VAR. BACKHOUSEI.

This form of the peach-leaved bellflower is an English introduction, and well deserves a place in every garden, especially the white forms of it. At this season of the year (June 1) outside of what the shrubs give us a pleasing white in flowers is a rarity, in fact at any season we cannot have too much of it in attractive forms. This perennial grows some two and a half feet high, sending up numerous stalks well equipped with side branches from which hang in profusion campanulate shaped flowers an inch and a half long and of equal width. Of four plants produced from seed last July three are white and single and one of a pleasing blue and semi-double. Standin a bay in the shrubbery with the dark foliage behind them they present a very pleasing picture. Being but small plants last fall they were wintered in a cold frame, which has undoubtedly caused them to bloom earlier than they will next year after remaining outside all winter.

[We raised a lot of it at Dosoris last summer and left the plants out in the open garden all winter, and they survived perfectly.—ED.] W. C. EGAN.

ERECT WHITE CLEMATIS.

W. M. J., Hackensack, N. J., asks: "What clematis is this? It grows in bush form about three feet high and as you see blooms early in June. A large clump of this makes a showy and pleasing effect."

It is *Clematis recta*, a strong, erect-growing species that forms large clumps with sheaves of airy white flowers that appear in early summer and are very effective. A stout stake about three feet high should be driven in alongside of each clump in spring, and the sheaf of stems tied up to it, but the support should be only as high as the leaves and not up into the flowers. There is a double flowering form of this clematis that is whiter and of more refined bearing than the common *recta* but it is scarce. Both are perfectly hardy.

Trees and Shrubs.

THE TREE LILAC
(*Syringa Japonica*).

We have a set of late-blooming lilacs from China and Japan whose flowers, foliage and habits are distinct from that of the common or Persian lilacs and not

unlike that of the privets. These species are *Syringa Amurensis*, *S. Pekinensis*; and *S. Japonica*. They all have "fleecy" white flowers, and are late-blooming, that is they do not come into flower till after the common lilacs are past. *Amurensis* bloomed first with us at Cambridge, Mass., in 1878, *Pekinensis* didn't bloom in this country till half a dozen years ago. When *Amurensis* gets good ground and an open place, and is grown on its own roots it makes quite a nice shrub, and comes into bloom about the third week in June. Before *Pekinensis* came into flower we looked upon it with some suspicion, it grew very nicely and formed comely shrubs keeping a good form and having lots of leaves. Since it began blooming however, we have found out that our first fears were groundless, and that instead of being of inferior merit it is the best and most floriferous of the three, bearing large panicles of creamy white flowers from every tip.

The tree lilac (*Japonica*) is the most distinct of all. It is grown from seed and from the first assumes a one-stemmed tree shape, usually making very symmetrical specimens. Although a strong grower it doesn't run up tall very quick but rather takes its body of branches along with it. Its foliage is large, clean, and leathery, indeed we have never known of the leaves of either of these species being attacked by mildew. The tree lilac has been blooming quite freely since a dozen years, but we cannot call it free-blooming; it makes up for this, however, in the immense size of its compound panicles.

All of these three species are perfectly hardy and very desirable garden plants; indeed *S. Japonica* lives nicely in the frigid northwest. We are indebted for our illustration to Messrs. Ellwanger & Barry of Rochester, N. Y.

TREES AND SHRUBS IN BLOOM JUNE 7.

Since my notes of May 23 there have been a few good showers of rain, but nothing at all adequate to the needs of vegetation generally. As a consequence blossoms of all kinds have been exceedingly lugacious.

Some of the later flowering diervillas (Weigelias) are still making a fairly good show, notably some of the dark ones such as President Duchartre and Montesquieu.

The different forms of *Philadelphus coronarius* are past their most showy stages; a very desirable variety is *primulæflorus* in which the blossoms are double and it does not seem to be quite so rank growing as the parent. Yokohama is another distinct form, lower growing and more compact in habit than the type and with distinct plicated foliage. We have always had doubts about the varietal connection of this form with *P. coronarius*. Lemoine's philadelphus is now in full flower and a most desirable form. The blossoms are just opening on *P. Lewisii*. The earliest form to flower is *P. grandiflorus* and it is now about past.

Amongs the single flowering shrubby roses *Rosa rugosa* in its different varieties is still giving us lots of flowers, *R. multiflora* is beautiful just now in its racemelike clusters, *R. moschcutos*, *R. rubrifolia*, and *R. nitida* are also now in bloom; and the charming *R. repens* of Europe with its white petals and yellow eye is at its best.

We have here a very pretty low spreading dogwood under the name of *Cornus australis*, which is about out of bloom. It bears numerous good sized white cymes. The panicled dogwood is in fine bloom.

The bladder senna (*colutea*) is now covered with its yellow flowers, it is spreading and establishing itself in this neighborhood with great energy.

Genista tinctoria (dyer's broom) is a mass of yellow blossoms, and *Cytisus hirsutus* is opening a few. Some lingering clusters are still to be seen on *Wistaria frutescens*.

The European privets are in full bloom. The laurel and box leaved varieties are very desirable shrubs. *Ligustrina ciliatum* is in bloom, it bears here, many small clusters of creamy yellow flowers. The common elderberry is coming into bloom and the early flowering species (*Sambucus pubens*) is showing bunches of red fruit.

Amongst the honeysuckles *Lonicera ciliata* and *L. fragrantissima* are showing ripe fruit. The trumpet honeysuckle and the yellow honeysuckle (*L. flava*) are still in good bloom, and *L. grata* and *L. glauca* have been in bloom since a week. A small leaved bushy form under the name of *L. Ibirica*, with small yellowish flowers is nearly past.

Deutzia gracilis is passing out of bloom, strange to say it flowered splendidly this season, while a year ago it was almost a failure with us, having been severely winter killed; how to account for it we do not know and this seems all the more puzzling when *D. crenata* (which is just now opening its flowers) has been severely damaged from the past winter, and from the previous winter it suffered no damage whatever. The two groups are side by side. *Itea Virginica* is opening its pretty clusters of white flowers.

The only spiræas in flower are *S. tenuissima* and *S. rotundifolia alba*. The clusters of seeds are ripening up pretty on *S. opulifolia*. The only spiræa so far as we know with at all showy fruit is the last named. [Most of the *Neillias* have.—ED.] The sun rose (*Helianthemum vulgare*) in different varieties gives us a crop of fleeting flowers daily, the blossoms lasting only a few hours.

False indigo (*Amorpha truticosa*) has been in bloom for some time, and the red bud (*Cercis*) is bearing a heavy crop of seed pods this year, the brownish pods are pretty.

Cotoneaster Simondsii is in flower and the clammy locust (*Robinia viscosa*) is passing out of bloom. A few flowers are still on *R. hispida*.

The New Jersey tea (*ceanothus*), a real pretty, but common native shrub is coming into bloom, masses of its white clusters of flowers are very attractive.

The yellow wood (*Cladrastis*) has passed out of bloom. It has not flowered as freely here this season, as it did the two past years. The European linden came into bloom to-day.

JOHN DUNBAR.

Highland Park, Rochester, N. Y.

NOTES FROM THE ARNOLD ARBORETUM.

Two years ago I spoke very highly of the new *Spiræa arguta*, which resembled *S. Thunbergii*, but surpassed it in every way, and it continues to surpass it. It should be grown everywhere and given a prominent place among early blooming shrubs. While *Spiræa Thunbergii* failed entirely this year in regard to its blooming qualities, *Spiræa argata* was loaded with beautiful white-clustered sprays about 18 inches in length, and in a whorl. The foliage which is now following the flowers (they having passed some two weeks since) is shorter and more oval in shape than that of *S. Thunbergii*. This plant is sold by some European nurserymen as *Spiræa multiflora arguta*.

Spiræa trilobata var. *Van Houttei* is so good that no one should be without it. As soon as it passes out of bloom cut out the larger portion of the old flowering wood; in fact we do this with many of our earlier flowering shrubs, and the results compared with the non-pruned plants is wonderful. If *Exochorda grandiflora* were pruned in harder after its flowering season it would be a handsomer shrub than it is and not so loose a grower. *Spiræa pubescens* blooming about two weeks ago did not flower as well as usual. Other spiræas that are doing well this year are *Douglasii*, *Japonica*, *mollis*, *cana*, *chamædrifolia* and *Mongolica*.

Physocarpus Torreyi is very ornamental, with its umbels of white flowers, and the red anthers of the stamens set off the flower very prettily. *P. Amurensis* has foliage much larger than the above and is covered with similar flowers. *Kerria Japonica* winter kills here to a considerable extent. We have the single yellow, the double form, and the variegated-leaved.

Rubus deliciosus which is passing out of bloom, has flowered well this season, its large, single, white blossoms being very beautiful.

Rhodotypos kerrioides is opening its white flowers. Although it is handsome now it will be more so in the fall, when it is covered with its black fruit.

Photinia villosa (*Pourthia arguta*) resembles the amelanchier very much, it being covered at present with clusters of small waxy white flowers. [But its greatest glory is in the fall when it is full of its clusters of scarlet fruit.—ED.]

Cotoneaster reflexa is a graceful and charming shrub covered with long sprays of white flowers. It is the most beautiful of this genus.

Pyrus nigra and *P. arbutifolia* both are used to a great extent throughout the park system of Boston and very useful shrubs they are, *P. nigra* being the earlier to bloom by a few days and *P. arbutifolia* the more straggling of the two.

The single roses are beginning to bloom. The various forms of *Rosa spinosissima*, namely *fulgens* and *pusilla* are very pretty. Both these and *grandiflora* have all the desirable qualities, as habit, foliage, flower and fruit, and they should be grown in all gardens. *Rosa alpina*, *R. acicularis*, *R. rubella* and *R. corifolia* and many other varieties bearing flowers of a medium size are beautiful and desirable.

Viburnum Opulus sterilis, the common snowball, is doing better this season than it has done for some time past and seems perfectly free from the disease which usually appears with it. *V. opulus*, the tree cranberry, is also in good flower, indeed I prefer it to the snowball itself, it being ornamental both in the summer with its flowers and in fall with its fruit. *V. tomentosum* is growing in popular favor every year and very deservingly. It is a plant of moderate growth and a "single" form of the Japanese snowball, *V. plicatum*. *V. prunifolium* is fast passing out of bloom; the plant when in its prime is very striking and almost a miniature tree. The cymes are of medium size with perfect flowers. *V. Lentago*, the sheepberry, a native of New England, is at present in full bloom, its large flat cymes of white flowers being extremely showy.

Among the cornuses we find *C. stolonifera* showing up nicely. This species and also *C. alba* are used in large quantities for winter and late fall effect in our parks on account of the brilliant color of the bark. *C. Ignorati* and *C. Baileyi* are also in good bloom. *Sambucus Sieboldi* is very ornamental at present with its extremely large cymes of greenish-white flowers.

Rhododendron Rhodora. This pretty

native shrub is just passing out of bloom and we wonder why it is not grown more. *Rhododendron Vaseyi*, the earliest and most beautiful of the showy azaleas, still holds its own. It is the most beautiful of the hardy azaleas. *R. mirabile grandiflorum*, another showy pink azalea, and *R. mudiflorum*, are just coming into bloom. *R. Ponticum*, *R. flavum*, and the Ghent hybrids in variety are making a brilliant show.

Robinia hispida is the earliest of this class and it is now covered with deep pink pea flowers. Its lasting qualities and its habit of blooming later in the season makes it a very desirable shrub.

Coronilla Emerus is literally covered with its 2—3 flowered clusters of deep yellow pea flowers.

Cytisus purpureus from the Alps is as good as usual and covered with pretty pea-shaped flowers. *C. incarnatus* is a decided gem and loaded with large delicate pink blooms. *C. Austriacus* is blooming sparingly, it having been winter killed. The same is true this year of *C. albus præcox* and *C. scoparius*. *Genista Germanica* is just golden at present and it is exceptionally hardy, too, and makes a plant to force for winter flowers.

Staphylea Colchica got winter killed very badly this season, plants 8—9 feet high being killed almost to the ground. *S. pinnata* and *S. trifoliata* are in good bloom but the flowers are rather insignificant compared with those of *S. Colchica*.

The enonymuses in great variety are in bloom, but it is better to note them individually when they are in fruit in the fall. *Ceanothus ovatus* is just coming into bloom and is a very desirable low-growing shrub. *Rhamnus Frangula* var. *pleniflora* is very attractive with its dark green linear leaves and small greenish-white flowers. The strawberry bush, *Calycanthus lævigatus* is just coming into bloom and is always welcome on account of its pleasant odor. *Calycanthus floridus* is now called *Zuettneria florida*.

Iberis Tenoriana and *I. corifolia*, hardy candytuts, are one mass of white flowers, and growing alongside of them is *Æthionema coridifolium* with its pink flowers making a good companion to the candytuffs. *Tamarix Africana* is laden with its pink flowers and is the admiration of every one. *Paeonia Moutan*, the tree paeony, is always very showy and stands our severe winters extremely well.

Especially noticeable among barberry bushes are *B. Thunbergii*, just passing out of bloom and *B. vulgaris* and its varieties *purpurea*, *cretica*, *Sieboldi* and *B. canadensis*. *B. Aquifolium* had its flower buds all winter killed. *B. stenophylla*, a splendid little species, is about 2 feet high with linear like foliage, and it is covered with small clusters of deep orange yellow flowers.

Among the caraganas are *C. arborescens* and its numerous varieties such as *Altagama*, *pygmæa* and *spinosa*, all of which are very attractive leguminous shrubs.

The chief attraction here at present is the lilacs, *Syringa vulgaris* and its varieties, of which we have 125 named sorts; as I mentioned them quite carefully in GARDENING in previous years, I will not now go over the list again, there is but little to add. The loniceras or bush honeysuckles have never been finer than they now are, some of the specimens being 8—10 feet high, and as much through and literally covered with flowers. Of the *Tartarica* type such varieties as *nana*, *rosea*, *alba*, *gracilis*, *pulcherrima* and *alba splendens* are most noticeable. *L. Morrowii* has more of a spreading habit and does not grow as tall as the Tartarian type, it produces innumerable white flowers. It is used very extensively throughout the park system of Boston with good effect. *L. Kupreechtiana* is a very strong grower with beautiful white flowers. *L. chrysantha* resembles the Tartarian type as does also *L. bella* and its numerous varieties. *L. Albertii* is a gem, low growing in habit and almost running on the ground; the leaves are linear and the flowers are of medium size and a deep rosy pink color. *L. Alpigena* is quite distinct, flowers borne rather scantily in pairs and are a sort of a deep maroon in color. Among the other lonicera that may be noted are *L. Orientalis*, *L. parvifolia*, *L. minutiflora*, *L. Ibirica* and *L. dioica*.

Andromeda floribunda is just passing out of bloom. It is the hardiest of all the andromedas and always makes a good show. *Kalmia glauca* for some reason was quite late this season. It is in good bloom just now. The same can be said of *Daphne Cneorum*.

Leucothoe Catesbæi is blooming extremely well this season, its drooping racemes of white flowers being quite attractive. We forced a lot of it last winter and found it quite desirable. *Ledum palustre* and its variety *dilatatum* are useful little shrubs belonging to the heath family and they are covered with heads of white flowers. *Leiophyllum buxifolium* is another pretty shrub of the heath family. The silver bell tree, *Mohrodendron Carolinianum* (*Halesia*) is always worthy of mention and is now in good bloom.

C. JACKSON DAWSON.

STREET TREES FOR SOUTHERN CALIFORNIA.

I have been a subscriber for GARDENING ever since its first issue, and a case has arisen in this city upon which I should like to ask your advice. In the residence portion of the city there has lately been opened a street which bids fair to be lined with very handsome residences. It is, in fact, almost built up at present. The owners are people of taste and refinement, and have been in consultation with each other for some time as to what would be a good tree to select for a street tree. The matter has not yet been determined, and I have requested them to wait until I could send this letter to you and get your opinion. You are probably more or less familiar with the flora of Southern California. You know that the grevillea grows here to be a tree, attaining a height of forty to sixty feet; that the pepper (*Schinus Molle*) has been for many years used here as a street tree and for ornamentation in different ways. You are also aware that the eucalypti of all varieties flourish here most readily, and that all the hardy palms—the phœnix, and all except really the kentias, etc.—likewise attain luxuriant proportions.

Individually, my objection to the grevillea is that it becomes ragged and shaggy when it gets old, and is exceedingly liable to be broken by any unusual gust of wind. The pepper tree drops a great many leaves, and has a tendency to become pendulate. The palms spread in their early growth over such an expanse of territory as to interfere with passers-by upon the sidewalk, compelling them to be trimmed up into trunks, deteriorating from their beauty. Neither does the eucalyptus attain any symmetrical shape. There are some *Acacia Melanoxylon* planted, and this seems to be about as symmetrical a street tree as any.

But I remember having read in GARDENING sometime ago an article upon a pin oak, which at the time attracted my attention. It seemed to me at that time that it would make a very superior street tree, and would have the merit of being novel here. The magnolia, the camphor and the *Ficus elastica* have been planted here, but the magnolia cannot be trimmed to a good shape without deteriorating from its beauty, and the last named tree has such large surface roots that it pries up the cement sidewalks. If you will be kind enough to answer this inquiry you might name some of the deciduous forest trees that would be appropriate, but you will understand that the elm and the maple do not grow well here. It seems that the mildness of our winter climate and general lack of humidity affects them. They never have the glowing autumn colors and they always put forth their leaves very late in the spring.

As usual, the parties who are seeking an appropriate tree desire one that has all the good qualifications and no bad, but, like many other things in this world, this cannot be attained in any one single object. Rapidity of growth, however, is one item that they desire to have considered.

H. W. O'M.

Ans. What a splendid climate you have got out there. No, don't plant the pin oak; while it is an excellent tree for the eastern and northern states, we do not believe it is an appropriate tree for Southern California. Write to Mr. John McClaren, Superintendent Golden Gate Park, San Francisco, for his advice in the matter. He knows trees well, and knows your part of the country and what will thrive in it; he can give you expert advice.

SYRINGA VILLOSA.

This handsome lilac from the northern part of China has been in cultivation since 1880, but it is not as freely distributed as it deserves to be. It has many good qualities to recommend it. It is now (June 2) but little past its prime in bloom, being nearly a month later than the common lilac. Its panicles are numerous, of good size and substance, and of a color approaching a shell-pink, while the perfume in the air surrounding the bush when it is in bloom is pleasing, a closer inhalation to me is not. Ellwanger & Barry have fittingly described its foliage by comparing it to that of the white fringe, and being a very pleasing shade of green. I dislike using the common lilacs in the shrubbery border or in conspicuous parts of any grounds on account of their liability to mildew late in the summer, at which time they present a sorry appearance, in fact I grow them mainly for cutting and give them quarters in the back yard. *Syringa villosa*, however, retains its lively green leafage untarnished all through the season, and is therefore available for any position. It grows fully six feet high, as many broad, and carries its blooms well above the foliage. It has for a companion now in bloom Lady Josika's lilac (*Syringa Josikæa*) from Transylvania, which is equally as fine in foliage, but not in its flowers, the panicles being smaller and of a purplish hue. The tree lilac (*Syringa Japonica*) is only now forming its immense panicles of creamy white scentless flowers, but a well formed tree in bloom is a sight well worth waiting for, as I have done fully five years from planting.

[*Syringa villosa* is easily raised from seed, and as it is a true species the flowers of seedlings are as good as those of grafted plants; besides seedlings root better and grow better. The seedlings

of this species are also used to graft other varieties on because it is not disposed to sucker like the *vulgaris* type.—Ed.] W. C. Egan.

Transplanting Lilacs in Summer.—C. H. B., Seattle, Wash., asks: "Can I at this season of the year safely transplant a collection of lilac trees about four feet tall? I expect to move my residence and wish to take the trees with me but am dubious about undertaking it while they are growing." *Ans.* Yes. Have the holes all dug and ready to receive the plants. Then cut back the lilacs a good deal, especially the leafy shoots, and thin out the old wood; now dig up the plants, being very careful not to expose the roots a minute more than you can help lest the rootlets may get dry and perish, and sprinkle them over with water, then cover them with straw or sheeting to keep sunshine and wind away. Plant at once, cover up, tamp the ground firmly, and give a good watering. Twice a day for a week or so sprinkle the plants overhead from a watering-pot rose—say in the middle of the forenoon and middle of the afternoon, the coolness and dew at night will be sufficient then. In regrading a part of the grounds here in Schenley Park occupied as a nursery for young trees we have to lift and transplant some thousands of young trees, and we are doing this right along now (May 28); we cut off the young leafy wood, lift carefully, dip the roots at once in a clay puddle, then heel the plants in for some days till the ground is regraded, when we plant them again, but before planting we puddle the roots again, our object being to save the roots, and so far every plant looks well.

Variegated Sycamore Maple.—C. B., New York, writes: There is a tree in Astoria, L. I., with variegated foliage, of which I enclose a sample. As I have never seen a maple of this variety, with variegated foliage, I thought possible that it might be a new variety. Can you inform me if this is so? *Ans.* It is neither new nor rare. It is one of the variegated-leaved forms of the sycamore maple (*Acer Pseudo-platanus*). There are two common forms, one with white variegated leaves and the other with yellow marked foliage and both attractive. (*Subrosa.* We were going to say pretty, but dare not because modern landscape art is "death" against variegated-leaved trees and shrubs of all sorts.) Go out to Parsons' nurseries at Kissena, they are close by Astoria, and ask our good friend Mr. Trumpy to show you these variegated sycamore maples in their various forms.

Vitis Coignetiæ.—J. A. G., Akron, Ohio, asks—Where can I get this vine, mentioned on pages 245 and 258? *Ans.* See advertisement in Gardening, page 252.

Roses.

CARING FOR ROSES IN SUMMER.

I have a bed of one hundred or more roses which have just done blooming. What shall I do with them to make them bloom in the late summer and fall? As I don't know anything about pruning them myself, will you please help me out?

Akron, Ohio. J. A. L.

Much depends on what sort of roses you have. If they are the white Mme. Plantier or moss or prairie roses or Persian yellow roses they won't bloom again in fall no matter what you do to them. If they are the hardy roses like General Jacqueminot and Mrs. John Laing they are apt to bear a few roses throughout the late summer and fall months even if you do not do anything to them; but to encourage this second crop—it is only straggling at best—when our roses are in bloom in May and June we cut the flower stems well back when we cut the roses; this encourages a fresh young growth that is more floriferous than the hard and well ripened canes of spring growth. The Bourbon roses like Hermosa and Mrs. Degraw bloom all summer long, no matter whether you prune them or not, and more fully in August, September and October than now, for the cooler nights have a tendency towards encouraging bigger and better roses. We always plant out a lot of tea roses in April or May, and they give us flowers all summer and up till the chrysanthemum season is upon us. If these are only young rooted plants and set out now they will bloom prettily in late summer; of course if they are early "struck" ones they will flower proportionately early. Indeed we had several hundred tea rose plants that we forced in pots last winter, and we planted them out in beds in the open garden a month ago; from them we expect to get lots of roses after midsummer. These tea roses are not hardy, but we raise a fresh lot from cuttings every year as we do geraniums, hence have no interest in saving over the old plants. Some of the polyantha roses, Clothilde Soupert for instance, are perpetual bloomers, and all should grow some of them.

As you don't say what kinds of roses you have we can advise you only in a general way. Cut off all the old flower heads pretty well back, thin out the old gnarly wood, and let every eye and twig have full light. When dry give the ground a thorough soaking of water.

Crimson Rambler is a gem of a rose and has come to stay; it seems to root well and grow sturdily, and its little red blossoms have a vivid and striking effect. Apparently it is quite hardy, and, so far this spring, it has shown no signs of mildew here.

The Greenhouse.

HYDRANGEAS FOR PORCH DECORATION.

F. P. L., Pittsburg, writes: "I have a number of large hydrangeas (the tender ones as hortensis and its forms Otaksa, Thomas Hogg, stellata, etc.) for porch decoration, but am uncertain about the following questions:

1. "At what time should they be pruned?"

Ans. When they have done blooming cut off the old flowers but don't cut back the shoots at that time lest it be so early in fall that the plump buds be induced to start into growth again or burst; rather wait till the end of October, when there is no fear of fresh growth starting, then cut back the shoots a little for two reasons, namely to better plump up the lower buds (those you want for next summer's flowering wood), and to so lessen the bulk of the plants that they can be handled easier in winter.

2. "How often should they be pruned?"

Ans. Partly in fall as stated above, and again in early spring before you start them into growth. When you bring the plants out of the cellar, cut back the shoots to sound plump buds. While the biggest buds may be near the ends of the branches it is better to cut back beyond these in order to preserve a strong, stocky habit in the plants; encouraging the buds near the ends of the branches gives a long naked-hearted plant that in a few years will look leggy.

3. "How far back should a branch be cut?"

Ans. Your own eye and discretion must govern this point; observe answer to last question. Bear in mind that all plump buds on the old or previous year's wood should bear flowering shoots; by reason of overcrowding and other cultivating influences, however, the lower buds may be so weak as to produce "blind" or flowerless wood rather than blossoming shoots. This is governed by cultural attention. At the root of the plants, especially of those having meagre or injured tops a lot of plump sprout buds are sure to show themselves, and they may suggest to you that by cutting back the whole plant to the ground these buds would soon shoot up and give you a fine, full, vigorous specimen, and so they would, but they would give you very few flower heads, may be none at all the first year.

4. "If flower buds set on say half of the shoots, would it be best to cut all others off? These shorter shoots if left on improve the looks of a plant by extending the foliage down to the pot."

Ans. In the case of a properly grown plant the flowerless shoots should be removed because they would crowd the others and darken the inside of the specimens so much as to render the eyes weak, hence aid in making the interior naked; if the plant is sparsely branched and the "blind" shoots are necessary to give it a furnished and good looking appearance, by all means retain them or at least enough of them to effect your object.

5. "How is it possible to judge the number of shoots to leave to produce the finest blooms?"

Ans. You must use your own judgment. You want to have shoots enough to fill up the whole mass easily, avoiding overcrowding. Two opposite eyes generally come from each joint, and to retain all of these opposite eyes, and from all of the joints would be indiscreet; rub off the weakest and the supernumerary ones, and as a rule save only one at each joint.

6. "What time is best to repot?"

Ans. In the matter of big plants we would repot them when we take them up from the cellar in early spring. And in fact we have found about the end of September, after the old flowers had been cut and cleaned away an excellent time for this work,—the plants made new roots and took good fresh hold before winter set in, and showed no signs of starting again the same season into renewed growth.

7. "Would a light cellar whose temperature runs from 34° to 40° be a proper place to winter them in?"

Ans. Excellent. While a little frost may not hurt ripe wood, it does not do the plants any good.

8. "Should they receive any preparation, such as withholding water, etc., before storing in cellar, and should they be kept pretty dry in cellar?"

Ans. No. It is well to keep them up out of the cellar so long as we can save them from a sharp frost, or, in fact, any frost; but the moment the weather demands their retirement, transfer them to their winter quarters. At that time we gather our plants together, cut back the

SECTION OF MR. GARDNER'S MUSHROOM PIT.

tips of the shoots a little, then with a piece of tar cord or hay rope tie the shoots up tidily together so that they won't run in through the other plants and get their buds rubbed off, and store the pots or tubs together as close as possible. By all means keep them moist in winter, that is never let the soil in the pots or tubs get dry. but don't wet the foliage overhead any more than you can help. Don't attempt to cause the plants to drop all of their leaves in winter, that isn't necessary at all, in fact we like to have them retain a good deal of their green leaves, it is a sign the roots are good.

Mushrooms.

MUSHROOMS.

BY JOHN G. GARDNER.

[*Read before the Philadelphia Florists' Club.*]

The material I have used for beds has been chiefly fresh manure from horse stable, with soil or well rotted manure mixed together. The general system in use of mixing material is fatal to a good all-round crop, as the bed formed under the old system has a very complicated service to render. First it is the home of the spawn; secondly, it must furnish the necessary warmth, for a healthy and free growth; thirdly, it must supply the general food for the mushrooms' development, so if any of these conditions fail a good crop cannot be gathered.

In the culture of mushrooms in greenhouses under benches, the temperature of the greenhouse will furnish warmth for a healthy growth, which relieves the bed, the material may be half fresh manure with the straw left in, and soil and well rotted manure, well mixed together and put down in layers. In using soil care must be taken to half lift and shake slightly, so as to let the soil filter down among the straw; this will prevent burning and drying out, and the bed will need less water. The fermentation will be slight and the decomposition of the mass slow, which is one of the chief features in keeping up a constant supply of food for mushrooms. Keep adding layers until you have a depth of 14 inches, the material kept pressed down until it becomes firm and the bed will be ready in a few days for spawning.

I have used hotbed sash or shutters as a covering for beds under benches, having placed 3 inches of rye straw over glass, tacked on with plastering laths to shut out light and sun with good success, closing down sash or shutter during days and propping them up at nights 6 to 8 inches. Canvas and paper I have used to cover and close in beds, but not with as good results as sash and shutters, owing to the effect upon them, during day time, of light and sun, which make too rapid changes of temperature for the the very sensitive mushroom. I have had the best results when I could maintain a temperature of 55° to 60°, slightly moist with a wholesome air. The mushroom needs good fresh air, but not in the way of a severe draft. The air must be changed each day and a slight moisture kept up. If the air is too dry the mushrooms will crack and become scaly on top of cap. If too moist they will draw up with long soft stems and small caps and become useless for market and shipping, and if the excessive moisture is kept up 48 hours all the small mushrooms the size of a pea will turn brown and rot; many beds are missed in this way. All decaying stalks should be removed from beds. I cut all my mushrooms, not pull them, and in three days after cutting I remove stalks, at which time they will separate from spawn without pulling out and damaging it.

If you watch the natural mushroom, in open pastures, you will find they spring up where the grass is short and the air is moist, the light and sun changing the conditions each 24 hours. In heavy long grass laden with moisture no mushrooms can live, although in the same spot, if grass was cut and removed, mushrooms would spring up, showing us very plainly that the condition was too moist, and with no circulation of air to form the atmospheric conditions that mushrooms develop in.

I advise making mushroom beds early in September, bearing in mind that the best results come from a slow and prolonged fermentation, and beds that dry and burn out will not pay. Make no beds less than 14 inches in depth when packed down

I now give you my experience in a outside small pit system of mushroom culture. The material is 3x4 hemlock and boards. You will see that the lumber bill will not be large. The first operation is to dig out a trench five feet wide and 14 to 16 feet deep in center sloping down banks to center. Mix together manure and soil, and form bed in trench, high enough when complete to be 9 inches above ground level, when well tamped down. Now take 3x4 material and form rafters for a span roof, allowing the north side rafter 8 inches longer than south, so as to over-lap. Now take boards and place them lengthwise overlapping like shingle roof to turn water, the north side boards may be nailed fast and the south left movable, leaving in south side 6 inches of space for ventilation at top, where the overhanging roof of north keeps rain out. When gathering mushrooms, the south side boards may be taken off to allow space to reach in freely. Mushrooms can be grown during April, May, June, September, October and November, under this system. The only attention the bed will need is a slight watering when crop is cutting and the pit covered with litter or long manure, to keep off sun and frost. I have used a bed several years by adding 4 inches of new soil and manure, which had been in compost, spreading it evenly over the surface of bed. The beds should not be allowed to get water soaked, and ground must be graded, to turn all surface water. During July and August, I let in a good supply of air and remove litter, and the beds be ome quite dry upon the surface, and I give no water until September to start them up again, anyone having space outside can raise good mushrooms in this way with little expense for material and labor, etc.

I have found that in total darkness mushrooms, during their growth will turn and draw over to air circulation, the same as fibre making plants turn to light, which makes it very clear that the air of the mushroom house must be considered of great importance. The best means to keep the atmosphere of a mushroom house moist is to place a few barrels of fermenting manure in the house, changing them when cooled off. This is a better plan than syringe and watering pot, and the risk of getting beds too wet is avoided. The ventilation must be from the top, or above the bed, avoiding all strong currents of air passing over the surface of beds when in bearing.

I have used hot water and steam for heating, but prefer the former. No pipes should be placed near surface of beds. A temperature 57° will bring rapid growth and if air is perfect a good supply of mushrooms will be the result. All sudden changes either of temperature or atmosphere, will affect the mushroom and should if possible be avoided. In regard to spawn I like the brick form best, and use it perfectly dry and spawn beds when temperature is below 90° and with a tendency to fall.

Many times I have been asked what weight of mushrooms is it possible to raise per square foot. To answer this question fully you must know the length of time, the conditions of cellar, pit or house. I have a cellar below ground from which I can cut mushrooms nine months of the year. Now in a greenhouse five to six months is all the time possible. In Jobstown in 1886, I kept record of cut from 24 hotbed sash and I cut during five months an average of 107 pounds per sash. I have a cellar below ground 50x20 feet that has yielded 80 pounds of mushrooms in one day and the average of same cellar in 1886 was 9 pounds per day for 8 months. I have a mushroom bed under barn at Conshohocken where 360 pounds mushrooms were cut in one week, but this is an exceptional case.

PLEASE FIND renewal of subscription enclosed. I do not spend any other two dollars through the year that give me the same amount of information and pleasure. W. W. O.

New York.

GARDENING

WILLIAM FALCONER, Editor.

PUBLISHED THE 1ST AND 15TH OF EACH MONTH

— BY —

THE GARDENING COMPANY,

Monon Building, CHICAGO.

Subscription Price, $2.00 a Year—24 Numbers. Advertising rates on application.

Entered at Chicago postoffice as second-class matter.

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All communications relating to subscriptions, advertisements and other business matters should be addressed to The Gardening Company, Monon Building, Chicago, and all matters pertaining to the editorial department of the paper should be addressed to the Editor of GARDENING, Schenley Park, Pittsburg, Pa.

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FINE CHRYSANTHEMUMS, HOW TO GET THEM.—Mr. E. G. Hill of Richmond, Indiana, our greatest chrysanthemum specialist, was here the other day, and told us how he managed to get such fine big, deep, substantial blossoms from his plants. "I use good, well enriched, fibrous, strong, loamy soil for them, with a little bone meal and soot in it, and in potting ram the soil as firm in the pots as a stick can beat it down. This is to firm the wood, give short-jointed growth and deep, long lasting blossoms. I plant the chrysanthemums out on benches for my finest exhibition cut flowers, and it is here we can tread, beat down and otherwise pack the soil down as hard as we wish, and that's as hard as a country road. Keep the plants a little on the dry side rather than in any way damp. Use tobacco everywhere as a prevention against thrips and aphides, and once a fortnight spray with Bordeaux mixture as a preventive against leaf spot and mildew."

A SOUTH CAROLINA THISTLE.—J. S. R. T., Spartanburg, S. C., describes and asks us to name a thistle she found growing wild there. Send us a plant by mail, as it is not a safe thing to name plants from description.

A MANY FLOWERED TULIP.—Messrs. Barr & Son, the seedsmen and florists of London, grew a tulip this spring that had eight blossoms to a single stem! The stem was associated and from it arose a central large perfect flower with seven others bouquet-fashion clustered around it.

FRINGED BEGONIAS.—A year or two ago we noted a break among tuberous-rooted begonias and that we were getting fringed and wavy edged flowers among their blossoms. John Laing & Sons the begonia specialists of London have perfected this fringing enough to secure an award of merit for one of them that they exhibited at a meeting of the Royal Hort. Society a few days ago. We welcome the fringing as a happy break from the even edged ones.

A NEW CAMPANULA.—Says the *Gardeners' Chronicle* "M Alboff has discovered in the Caucasus a new species of campanula, which, according to the report in *Nature*, so much exceeds all known species of the genus by its beauty, that M. Alboff proposes for it the name of *C. regina*, and remarks that its general shape so much differs from that of all other now living campanulas, that it must be without doubt a remainder from a foregone geological flora."

PANSIES.—No wonder they are favorites; puck them with their leafy stems and what can be prettier or sweeter? The old plants are seeding freely now, save seeds from the best varieties; and if you have picked out all the poor sorts and throw them away so that all of the seeds that ripen and drop on the ground may be of the good kinds, the spontaneous seedlings that will spring up by the thousand next month will all be the progeny of good parents and worth saving.

EGANDALE IS OPEN TO ALL READERS OF GARDENING.—One of our readers writes to Mr. Egan as follows, and Mr. E. kindly replies as above: "I have read in GARDENING with much interest the many articles about Egandale and its many beautiful trees, shrubs and plants. This has caused a very strong wish and desire to visit and see the place, and I would hereby ask your kind permission to do so, that is, if visitors are admitted. I expect to be in Chicago soon and will come to Highland Park to see your place if your consent is given, which I will appreciate as a great favor."

THE AMERICAN COLUMBINES have long spurs and the old world species have short ones, but the former are by far the most elegant and beautiful, indeed the true Rocky Mountain blue columbine (*Aquilegia cærulea*) is not only perhaps the most beautiful of all columbines but one of the loveliest of hardy flowers. How mortifying it is when we buy a lot of *cærulea* seed and sow it and grow it and wait a year for it to bloom to find that our plants are a mongrel lot of long spurred and short spurred, blues and purples, and variegated! Who can send us some seeds of the genuine *cærulea*?

TULIPA BATTALINI.—In our last (June 1) issue, page 274, Mr. Fraser calls attention to this beautiful tulip as it behaved at Mountain Side Farm, N. J. In the London *Garden* just to hand is the following editorial note: "There is an exquisite beauty in the soft yellow flowers of this species that all must admire. We saw recently cut flowers at the Drill Hall (the hall in which the exhibitions of the Royal Horticultural Society, London, are held) but as such it is certainly not seen at its best. Again at Ditton we saw it growing among the thousands of tulips that may be found there, the clear soft yellow flowers showing thus to advantage." It is a strikingly beautiful tulip and new and rare, but to be had; if you value superfine flowers, get some bulbs of it.

THE SHINING UP OF HORACE WELLS.—One of our readers in Hartford, Connecticut, writes: "We are making a lot of new parks here, but we have one little gem of forty acres near our capitol, and in it stands several statues, among them one in bronze, of Horace Wells, a fine piece of art. Lately it happened that in a fit of cleaning up the park, the lamp posts and bridge iron railings were painted a very dark green, and poor Horace Wells received a coat of varnish (!!), and thus arrayed in painted glory his face shone out in hideous gloss. This brought forth such a storm from the press, that an illustrious New York artist in bronze was called in by the park authorities, and he washed poor Horace with something (turpentine, I believe) to remove the lamentable varnish, and then he gave it a coating of beeswax, but the last is worse than the first."

CHILDREN'S SUNDAY AT CHURCH.—Yesterday, June 14, was children's day at church, and the little ones were as bright and pretty as children could well be. The church was nicely decorated with plants and flowers and there was a bank of geraniums in pots and everyone in bloom to be given as presents to the children, each little boy and every girl got one, and they beamed with pleasure over their prizes. But let us suggest two things. Have plants enough and to spare, then after you have supplied all the children of your Sunday-school, look around through the church to see if there are any other children there, children that may neither belong to your Sunday-school nor to your church; don't you think a geranium given to them would have a Christianizing power? Indeed it would. Another suggestion: Let every pot be wrapped in clean white paper so that the children may in their ecstacy hug the plants to their hearts without destroying their Sunday clothes.

Orchids.

ORCHIDS.

Many persons within the last two or three years have got a small stock of orchids by way of trial, and doubtless, as in the many cases that have come directly under my own notice, they have purchased the plants from closing out sales and got many kinds that were not useful for the purpose for which they were intended by the purchaser, who is both disappointed and dissatisfied with orchid culture. I noticed some collections that contained a majority of such plants as *Stanhopea Brassavola*, *Cypripedium concolor*, and *C. niveum*, many plants of *Epidendrum cochleatum* and *E. ciliatum* and many other such plants that are well enough in a large mixed collection, but no good for a choice small. These plants may have been

bought at a moderate price but at best they are disappointing. I do not, however, agree with many growers who confine themselves to only one or two species such as *Cattleya Trianæ*, having found from experience that the *Vanda tricolor* and *V. cœrulea* and many of the *Aërides* are are also very prolific and lasting. I have many plants of *V. tricolor* and *suavis* and they bring about 3 crops of flowers per year, and certainly as cut flowers for basket work nothing can surpass them for trimming the handle of a large basket, which by the way is no doubt the best arrangement of such bloom. The beautiful and imposing cattleya, the bold cypripedium, are par excellence the flowers for the base of the basket, and sprays of odontoglossum and aërides drooping gracefully over the sides on maidenhair or asparagus, with the handle nicely sprayed off with vanda in variety interspersed perhaps with *phalænopsis* and other sprays such as *Ionopsis paniculata* and *Oncidium incurvum* and such like.

To those that have only limited space and have had through necessity to keep all of their orchids in one house during the winter I would say lose no time in placing them in their proper place during their summer growth, for instance separate your *Cypripedium insigne* from such varieties as *Lawrenceanum* and such hot moist loving stock and bring them into a cool light position where they will make study growth and consequently a heavy crop of flower, also bring the various tribes of *lælia* into a light airy position, as they will do with much less heat than is required for cattleya. I refer to *L. albida*, *L. autumnalis*, *L. Perrini*, etc. Then also *Dendrobium nobile* will do with less heat and moisture than will the new comer from New Guinea, the *D. Phalænopsis* which will bear very moist, strong heat, and plenty of light during its growing and flowering period, which will last from now till October or November, when they should have a long rest in a cool house, 50° to 55°. Of course this is a little opposite from what they get in their native homes, as I believe they rest in the dry, warm season and grow in the rainy season. The whole dendrobium family will be invigorated by an occasional treat to a stimulant of weak guano water or any other liquid manure that will come handily to the cultivator, of course first taking care that the plants are in healthy and strong growing condition and care should also be used not to spray the foliage. Do not commence this treatment untill the new growth is fairly on the way, say from one to two inches out of the vase. *Cymbidium Lowii*, *Sobralia*, *Phajus*, etc., all enjoys weak waterings of the above. Do not fail to keep a good supply of strong tobacco stems on the pipes in your hot house, this will relieve you from the unpleasant task of hunting for thrips remedies, these insects do not relish the tobacco atmosphere. Snails can be kept scarce by using coarse bran in which a little Paris green has been incorporated, this is also a good remedy for the cockroach, which by the way is a great lover of the feeders of the orchid roots.

Utica, N. Y. WM. MATHEWS.

ORCHID NOTES.

The following orchids are in bloom here now (June 1): *Cattleya Schofieldiana*, an easily grown summer flowering species; *C. Harrisoniæ violacea*, a free flowering cattleya with violet-purple flowers, often blooming twice in a year; *C. gigas imperialis* and *C. gigas Sanderiana*, fine large flowered kinds, reliable and of vigorous growth; *C. Gaskelliana pulchra*, a very handsome orchid indeed, all the varieties of *C. Gaskelliana* are desirable and, like the type, reliable.

Epidendrum dichromum does well with basket culture; *Sobralia macrantha* and *S. Williamsii*, large growing plants with reed-like stems, bearing on their summits cattleya-like flowers; they are of easy culture but take considerable room. *Aërides odoratum*, free-growing and fragrant. *Vanda tricolor*, a lovely species with a good many varieties, all of which are desirable. These two orchids should never be allowed to get wholly dry. They do well in suspended baskets, which allow freedom to their long aerial roots. A mixture of sphagnum moss and potsherds is the most suitable material to grow them in.

Cypripedium barbatum nigrum, and *C. Schroderæ*, the latter a very highly colored flower of a rosy purple hue. *Maxillaria tenuifolia*, an evergreen easily grown orchid with purplish brown flowers; very odoriferous.

The following are in bloom in a neighbor's collection: *Dendrobium anosmum*, flowers purplish lilac; *Broughtonia sanguinea*, a free flowering species suitable for block culture; *Lælia grandis*, yellow flower with a white lip striped with crimson; *Cattleya citrina*, with yellow fragrant flowers; it should be grown on blocks, the leaves hanging downward, in the cool house; it generally dies out after the third or fourth year. And the following cypripediums: *C. Elliottianum*, *Dominianum*, *conchiferum longifolium* and *niveum*.

Orange, N. J. WM. FITZWILLIAM.

The Vegetable Garden.

THE VEGETABLE GARDEN.

CHIVES.—Don't let them all run to flower; cut over a few clumps so that they may throw up young leaves. If left uncut the plants run to flower, and soon get rusty and unusable.

CARROTS.—If the plants in the row are very thick thin them out a little either by hand or the corner of a hoe; it will give those left a better chance to get larger than they would have if left all in bunches and it is with carrots as with other roots; if grown quickly they are apt to be tender, if grown slow they may be tough. Although we like to sow our main crop of winter carrots about the end of this month or first of July, their welfare depends a good deal upon whether we get rain enough to start the seeds and keep the seedlings in active growth ever after. Rather than risk everything so late, better put in a good sowing as soon as you can conveniently.

CORN.—Put in a good sowing once fortnight up till the middle of July, of course in localities colder than New York the end of June may be late enough. Keep the crop well and frequently hoed as a precaution against drouth as well as for cultural reasons. If the ground and weather are very dry and you wish to sow corn, mark off the hills and dig them over deep and mellow, then with the hoe scoop out a wide hollow in the middle of each hill and fill it with water, giving a pailful to each one; when this soaks in draw on a little earth, sow the corn and earth it over with loose mellow earth, giving it a tamp with the hoe. This will start the corn no matter how dry the weather may be. And do the same with melons, cucumbers, squashes, and other vegetables you sow now. Look out for the worms in the young ears, they are generally quite troublesome to the early crop. If you look in time you will find them in the silk or just as they enter the tip of the ear, then pinch them between your fingers. If you delay hunting for them they will soon eat their way down into the ears, making very dirty and destructive work.

CUCUMBERS.—Look out for cut worms every morning. Where you find a plant has been cut over during the night, scratch away a little earth from the base of it and there most likely you will find the marauder; now kill it. Or mix a little Paris green in bran and lay a little heap—half a teaspoonful in each hill; while this is a bait to the worms it also is an attraction to other creatures, and may be the cause of more evil than good.

DANDELIONS are our earliest outdoor spring greens. If you had them this spring and have kept over the old roots, dig them out and throw them away; they are no use for another season, they seem to flower the moment the spring opens. They should be sown early in spring. If you have not done this by giving the ground a good soaking of water before sowing and shading it with excelsior or sacking it for some days the seeds will germinate yet; if not they are apt to lie dormant till the after midsummer rains come when the plants will be too small to give good greens next spring.

EGG PLANT.—On account of the cool stormy weather of the latter part of May nothing was gained by planting out our egg plants in that month, but if the plants have been well inured to the air it is now time to set them out. They like a warm sheltered place.

GARLIC should be planted as one would onion sets in early spring. Let it alone till it matures, then pull it up and store it for use. If you leave it in the ground after the tops die down it is apt to rot, or at least get lost.

HORSE RADISH.—Cut the flower stems out of the old plants, this spring's setting is not apt to run to blo m this summer. Use the old roots first.

KALE.—Put in a sowing of dwarf green curled when you sow the winter cabbage, or even a month later, just as you have room for it. If planted early there is no danger of its running to seed; if planted late, small although it may be, every leaf of it will be fit for use; this makes it an accommodating as well as useful vegetable, for if we have plenty of it on hand we can fill up any odd places in the garden with it that may be empty, and gaps among other crops.

KOHL-RABI.—Sow and treat as you would cabbage, except set the pl nts much closer together, say 18 inches apart.

LEEKS.—Transplant those sown in spring. Draw a deep row as if to sow beans in, and into this dibble the leek plants a few inches apart.

LETTUCES.—Thoroughly wet a row or piece of ground, and as soon as it mellows enough to rake scatter some lettuce seeds on or along it and cover them lightly. When they come up thin them to a few inches apart, wide enough to let them heart. Or if the ground is moist and the weather not very hot, transplant them. Sow at least once in two weeks.

MELONS.—Both musk and watermelons if not already sown should be sown now; if the ground is good and conditions favorable the hills of muskmelons may be 6x4 feet, and the watermelons 6x8. If the weather is dry prepare the ground as recommended for corn, and look out for cut worms as mentioned for cucumbers. But we think we get a better stand of melons and cucumbers too when we sow

in rows rather than in hills, and thin out the seedlings to a foot or so apart. As soon as the seedlings appear scatter a little fresh tobacco dust over them.

OKRA.—Sow a little more in a row and thin the plants to six or more inches apart. While we can get a long season so picking from one sowing if we keep the pods picked off as fast as they are large enough, it is well to make a sowing in May, one in June, and one the first of July.

ONIONS.—Keep the hoe running between the rows, weeds or no weeds. If they are troubled with maggot mix a little kerosene with water, say one-tenth of kerosene, and pour this gently along the rows. While it will not cure the evil it will do much towards alleviating the trouble. Pick the flower stems out of the "sets" onions.

PARSLEY.—Keep the flower stems cut out of the old roots. If the spring sown parsley has come up very thick thin it out a little by chopping out little spaces in the rows with the corner of the hoe; the parsley left will be much stronger for it. If you want to you can still sow some. Indeed, we always found it very convenient practice to sow our winter parsley in summer in a cold frame emptied of spring flowers; and here we let it grow all summer, and when winter came on it was in full freshness and leaf.

PARSNIPS, SALSIFY AND SCORZONERA are usually sown in May, but if neglected then it is not too late yet to sow some seed. Sow in rows 2 feet or 2½ feet apart. The parsnips had better be thinned out to 2 or 3 inches apart; unless in patches where they came up very thick the others won't need any thinning. Indeed it often happens that salsify and scorzonera suffer very severely from the voraciousness of cut worms and we have to sow the gaps in June.

PEAS.—Keep on with successive sowings till the 10th of this month. Use the intermediate sized kinds like Stratagem, Abundance, Juno, and the like only. Don't sow any early peas now, nor yet any extra-late ones.

PUMPKINS AND SQUASHES, that is the large growing varieties should be sown in hills say 6x8 feet apart, or in rows, according to the richness of the ground 8 or 9 feet apart. We generally sow our winter squashes in the corn field when we sow the corn, dropping four or five seeds into the hills in every third row. The bush squashes had better be sown in hills in 6 feet apart rows.

POTATOES.—Cultivating and hoeing and otherwise keeping them clean from weeds and free from Colorado beetle are about all we can do just now for them. Look out for the beetle, though. Without good foliage you cannot have good tubers, then what's the use of feeding your potato leaves to these ochre striped pests?

PEPPERS, like egg plants, like warm weather. So far it has been too cold to put them out, but now the season is far enough advanced to warrant us in planting them in the garden in safety.

RADISHES for a while now lose flavor and also they are difficult to get up in good condition, for while they may grow well enough they are apt to come very wormy.

RHUBARB.—Keep the flower stems cut out. Dig out the poor thin-stemmed green-stalked plants now that you can [CONTINUED PAGE 302.]

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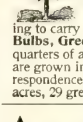

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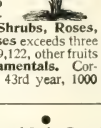

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see them, for towards fall when the leaves die off it will be hard to tell the bad from the good.

SORREL.—Cut back the flower stems so as to keep up a good lot of fleshy leaves near the ground.

SPINACH loves rich moist ground. Sow it wherever you can spare a small piece of ground, or in patches of rows between other crops. The Viroflay is a fine sort. Sow often, for after this time of year it is apt to run to flower very quickly.

TOMATOES have been planted out some time, others are yet to plant, and for the best September and October fruit we like to sow a row out of doors late in May or early in June, thinning out the seedlings when we know it is safe to spare them, to a foot apart. They grow wonderfully fast. While plants spreading on the ground bear the heaviest crops they are more liable to rot than when the vines are trained up against or over a trellis.

TURNIPS.—Sow every month if you must have tender roots. In hot summer weather turnips don't last long in good using condition; and as it often happens if we leave old turnips in the ground after their usefulness is past they rot in the rows, they should be pulled up and thrown away as soon as they are too old for use.

Miscellaneous.

NOT BEGONIAS.

The only fault I have to find with GARDENING is that it uses its friends so nicely when they apply for information that they feel inclined to "come often, and stay long sometimes," and so perhaps abuse a good thing. [The oftener you come the better we like it.—ED].. I tried raising tuberous rooted begonias from seed last fall, sowing the seed late in September and growing the plants all winter, with the idea that I would possibly get flowering plants this summer and fall. I enclose sample leaf and flower stalk of what I have got so far. As I had never seen seedling plants of this kind, and the leaf looks so much different from the leaves from the tubers, I send it to you with the inquiry as to whether there has been any mistake. Any special care required for these seedlings? I am planting a second lot of seed now, with the hope of having fair sized tubers by fall.

Philadelphia. H. C. V.

Ans. The plant sent is one of our commonest weed crowfoots (*Ranunculus abortivus*); it must have come up a weed in the soil. You shouldn't sow tuberous rooted begonias in the fall because large or small, young or old, they have a persistent tendency to rest in winter. Sow them in the greenhouse in January or February and they will grow away nicely and without a break and bloom all summer; even sown as late as the first of May, if well taken care of, they should bloom nicely in late summer and fall.

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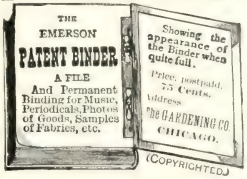

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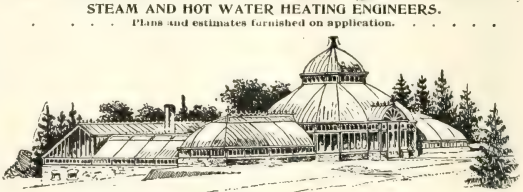

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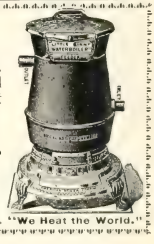

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GARDENING

Vol. IV. $2.00 A Year 24 Numbers CHICAGO, JULY 1, 1896. Single Copy 10 Cents. No. 92.

NATURAL GARDENING A COLONY OF TRILLIUMS

The Flower Garden.

NATURAL GARDENING.

Our illustration is engraved from a photograph of a bit of natural gardening in the rear of two old apple trees close by Mr. Dunbar's house in Highland Park, Rochester. This is the kind of gardening one never gets tired of. The ground is carpeted with a host of pretty wild plants, some of which are in bloom all the time, and they are in quantity enough to make each one a feature in itself, for instance, when it is trilliums, the prevailing flower is trillium. But there is no isolation, for between and under the trilliums may be lots of violets, a spread of wood anemone, or many others. And bigger plants may also be intermingled with them or planted in proximity to them. There must be no monotonous sameness, however, that is all of the ground mustn't be planted in this way we want variety of scene as well as of plants and this we get abundantly in Highland Park where every kind of shrub hardy in Northern New York is grown. A word about trilliums: Why are they dotted about so and not in big clumps? some may ask. Because such an arrangement would be unnatural, trilliums don't grow that way in their wild state, but instead just as they are shown in our picture, sometimes spread in gregarious colonies and then again scattered broadcast through the woods.

Many of our common wild flowers make pretty effects when grouped together under suitable conditions. The picture shows a colony of several hundred trilliums with a group of lungwort (*Mertensia Virginica*) at the back on the right, or to the left of the babies. They are growing with more than native luxuriance under the shade of two useless, old spreading apple trees (not seen in picture) at the rear of the house. We would have chopped the apple trees down long since, but saved them for the shade they gave our early spring wild flowers that grow only in shaded places. Along with the trilliums are many hepaticas, rue anemones, dog's tooth violet, spring beauty, crinkle root, barren strawberry, some of the crowfoots, violets, cypripediums, star grass, habenarias, wintergreen, prince's pine, gold thread, polygalas, *Phlox divaricata*, mitrewort, etc. It is not an ideal place for growing wild flowers, perhaps, but one usually is hard to obtain in connection with dwellings. However, if the surroundings in this case

are not exactly harmonious for a wild garden, the plants all grow there pretty well, and they give us a great amount of pleasure. JOHN DUNBAR.

Highland Park, Rochester, N. Y.

CYPRIPEDIUM PUBESCENS AND SPECTABILE.

I bought some roots of these in April. I had no leaf mold at the time, so planted them in a shady corner, in moist light soil, where they get a few hours of the morning sun, even that being partly cut off by the shade of a large *Kosa rugosa*. The *pubescens* had one large beautiful yellow flower, greatly interesting flower lovers in my neighborhood, but the *spectabile* has not bloomed yet, and I do not suppose it will this season. What I wish to know is, is it worth while trying to do anything with these hardy orchids? With the exception of the absence of leaf mold. I think all the other conditions are favorable to their growth. They are really so beautiful, interesting and curious, that I want to get a lot if it is worth while.

L. C. L. JORDAN.

Of course you can grow them, and that too in your open garden in perfection, and with the satisfaction that they are likely to increase in size of clumps and number of blossoms every succeeding year, at least that's how they used to do with us, then why not with you? But don't buy them in April. Order them now so that their position in the woods can be marked and you can get the plants about the time the stems die down. While leaf mould is an excellent thing for them it is not imperative, if you have any swamp moss chop up some and mix it with the soil you plant the cypripediums in, and if practicable mulch about them with swamp moss, or better still moss and leaf soil mixed together. We have found that *pubescens* and its almost twin sister *parviflorum* love a little shade, and moderate moisture, but *spectabile* while it will grow in a swamp, will also thrive in a moist spot in the garden.

MY GARDEN.

All my plants were moved last fall from Cambridge to Brookline, and all my spare time is devoted to starting a new garden. Our season has been very dry, and results are good, but not as good as they will be another year. The only regret I have is that my large plant of *Rosa multiflora* was planted in a very sunny place, and all the wood is killed down to the earth, but it is sprouting nicely from the ground and will be a fine plant next year, and I can train it to suit the new conditions Of course I moved it again to a better spot. I have two young plants of it raised by the Storrs & Harrison Co., to whom I sent buds last summer. They have a stock now from these buds. Ellwanger & Barry also had cuttings of ripe wood. Am now building

A SMALL CONSERVATORY for my orchids attached to the house, giving me bench room 2 feet by 24 feet, more room than I had before, to say nothing of the rafters for hanging those on blocks and baskets.

CANNAS.—I had a bed of Admiral Courbet and Mme. Crozy cannas and saved seed in '94 and grew one plant in a pot. It threw up three spikes of flowers this winter, and as a friend of mine grew Mme. Crozy for Easter sales we had a chance to compare. We think our seedling is as good as Mme. Crozy, with more yellow on the edges and a little brighter red. I will divide it and plant it out soon but the old Admiral and Crozy are still first in my estimation.

I MISSED CYPRIPEDIUM SPECTABILE at Easter, notwithstanding I made ready a new stock for forcing, hoping to have a place for them sooner. These plants are growing finely under a broad piazza where there is ample room and light, and will flower. My old stock of this fine slipper orchid I gave to the Botanic Gardens at Cambridge, and was there last Sunday to see the plants in flower, and we hope they may be established, but I think much finer flowers and plants can be grown under glass than in the open. [No, they grow better out of doors, in fact, in the garden they grow well, increasing in size, strength and beauty, and they live year after year. Between fourteen and nineteen years ago we had them in splendid condition out of doors in the Cambridge Botanic Garden. We also had *pubescens*, *parviflorum*, *arietinum* and *candidum* in as good form at the same time, and with no difficulty beyond a little intelligent care and placing. And since then we grew *spectabile* at Dosoris for forcing, blooming the same old plants year after year.—ED.] With me they always did well using sheep manure water very weak and potting in leaf mould, sand, and live moss, with one-half drainage of stones and charcoal.

ARETHUSA BULBOSA is another orchid that can be forced. Although I only had it once it was fine and will have it again. [True, the arethusa is a little gem, and easily forced the first year, but not so easy to keep over in good condition and force in successive years. But the satisfactory cultivation of these beautiful little plants is largely a matter of love; if you truly love a plant it is almost sure to thrive under your care.—ED.] T. N. C.

Boston, Mass.

PLANTS IN BLOOM JUNE 22.

The Spanish irises are past, but the English ones have taken their place, these latter are fine and their color ranges through blue to the purest white. The *Kœmpferi* iris are making a good showing, but it will be a fortnight before they will be at their best.

Lilium Thunbergianum (or *Elegans*) and several of its varieties are in nice flower. It is one of our earliest and most showy lilies. According to kind they vary in size from twelve inches to two feet or more in height. *L. Dalmaticum*, now past, was quite showy while in flower, but it did not last long. A large clump of *L. Hansonii* is now coming into flower; what a grand lily it is! On our sandy, well drained soil it does very well and grows stronger every succeeding year. Its flowers are yellow dotted with brown. *L. pardalinum* is in good bloom, its flowers are orange red spotted with black. *L. Brownii* and *L. candidum* will be in flower in a few days.

Iris Monnieri is distinct from the other irises; its leaves are dark green, long and thin like those of a gladiolus, the flower scape is about three feet high, and the blossoms are of a rich golden yellow color.

Salvia argentea has been in fine flower of late; its beautiful silvery leaves and pure white flowers make it one of our best border plants. It is easily raised from seed and is quite hardy.

Lathyrus latifolius (perennial peas) are beginning to flower; they grow about four to six feet high and need brush to run on, the same as sweet peas. The spireas are quite gay just now. *S. filipendula* is about past; its fern-like foliage and showy heads of pure white flowers were very choice.

S. Aruncus is in good flower, it grows from four to five feet high, and has also white flowers that last a long time in bloom.

Lychnis Viscaria (ragged robin) has given us flowers for over two months. It is one of the best things we have in the garden for cutting from; it has long spikes of fragrant red flowers. *L. Chalcedonica* has heads of conspicuous crimson flowers, and the *Haageana* hybrids, from seed this spring, are giving a lot of flowers; they are of all shades of red and pink to the purest white.

The verbascums (mulleins) have improved very much since my last notes. *V. phlomoides* is the best one; a large group of it here with delphiniums planted amongst them makes a lovely picture. *Campanula Trachelium*, white and blue, is in nice flower; they are from seed sown last June. They grow about four feet high and have bell shaped flowers. *C. persicæfolia* has been grand; the seed of it was sown last June. Get a paper of seed of this now and sow it right away and you will have nice plants in bloom next summer. *C. turbinata* is now at its best, this also is from seed sown last June.

Bessera elegans, an easily grown little Mexican bulbous plant, is in nice bloom. We treated it the same as we did gladiolus bulbs; its flowers are real pretty, about an inch in diameter, drooping in clusters, and scarlet with a white band through the center of each petal.

The marguerite carnations are beginning to flower and be fine; they are easily raised from seed and bloom the same year as when sown.

Dichtamnus Fraxinella, both white and purple have been in nice flower of late but are now past; it is a gem, lasting long in flower. *Allium Moly* is a little bulbous plant with compact umbels of bright yellow flowers. *Œnothera Lamarckiana* is the finest of the biennial evening primroses; its big yellow flowers don't last long, but they are fine while they are open.

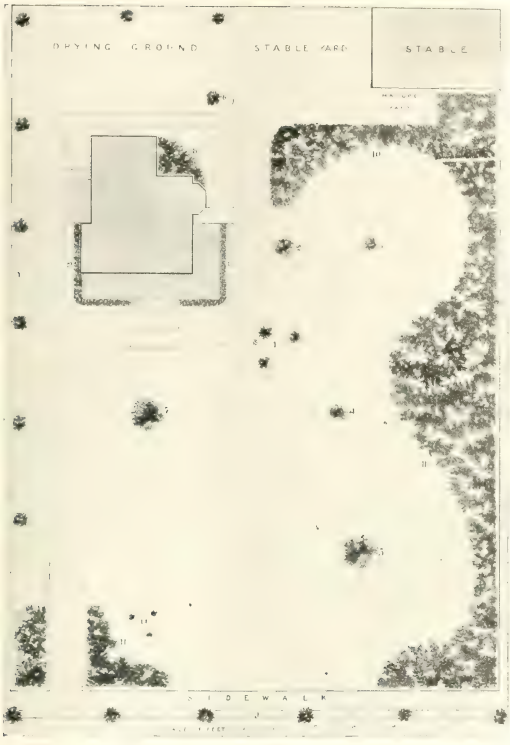
Perennial phloxes are beginning to flower but it will be some time before they are all in bloom. Self sown poppies are in nice bloom. A lot of them among the foxgloves makes one of the loveliest spots in the garden.

The Canterbury bells are at their best, and what a show they make! Grown in a mass one can see them at their best and they are so early raised from seed that every one should have them. *Linaria Dalmatica* grows three to five feet high, and has large branching spikes of yellow flowers. The glaucous foliage shows it off nicely, its blossoms last a long time in beauty. The plant is quite hardy and so good that we could not do without it; it has been in flower now for over two months and is in nice bloom still. Sweet williams, pansies, stocks, and delphiniums are at their best. The annuals are beginning to make a good show in the garden, and in a week or two will be very fine. DAVID FRASER.

Mahwah, N. J.

PLAN FOR LOT 150 X 210 FEET.

This plan is designed as a type of an economical and convenient arrangement of a suburban lot of ordinary size and shape, such as are laid out by the thousands every year; the scheme of putting the house towards one corner is an unusual one, but makes it possible to arrange the drying ground and outbuildings more economically than by the ordinary plan of putting the house near the middle of the lot. By this means also as great an expense of unbroken lawn as



PLAN FOR A LOT 150 X 210.

is possible is secured, and the stable and yards are effectually concealed from the front.

The general effect is gained mainly by a large shrubbery of bold outline, which is varied by the different heights and sizes of the plants used. Spots of color can be easily and artistically secured by groups of strong growing herbaceous plants.

Trees are planted to shade the sidewalk but not in the lawn. This saves the grass and the general appearance of the place.

EXPLANATION OF PLAN.

1. Three Japan crab apples assorted.
2. *Magnolia conspicua.*
3. Cut-leaved birch.
4. Weeping dogwood.
5. English purple beech.
6. *Magnolia Soulangeana.*
7. Tulip tree.
9. Silver maples or pin oaks.
10. Evergreens, rhododendrons, etc., to screen the stable.
11. Mixed shrubbery, a few small trees.
12. *Eulalia gracillima* edged with *Funkia grandiflora.*
13. French cannas preceded by Dutch bulbs.
14. Three Japan maples.

J. WILKINSON ELLIOTT.
Pittsburg, Pa.

RED SPIDER ON SWEET PEAS AND POPPIES.—E. C., Petersburg, Va.: "We have always had fine success with sweet peas also poppies but now have become very much discouraged, the pest red spider having completely ruined both peas and poppies, the latter looking as though fire had scorched them. We have sprayed and tried many remedies, but all have failed. What shall we do?" *Ans.* It the trouble is red spider and your peas and poppies are badly infested there is no cure, at best partial prevention is all you can expect. Unless your plants or some of them have come in contact with other plants of any kind, that had been grown in a house or greenhouse, it seems strange to us that they should be so badly infested so early in the summer. The poppy growth is about over now for a season and you cannot save them, but by free and forcible hosing and a good soaking at the roots, no doubt you can prolong the sweet pea season for a while.

LILIUM CANDIDUM LOSING ITS LEAVES.—A reader asks: "Why do my plants of this lily planted in the open ground, under full sun exposure, become unsightly in the foliage just before the flower buds open; is it lack of proper treatment? A few I have in the shade of some shrubs do not act that way. *Ans.* Without a more intimate knowledge of the cultural conditions under which your plants are grown, we would not even venture an opinion. It grows well in the open garden border, but better where its stems are slightly protected. Are you sure your lilies haven't got lily disease, diseased body leaves is its first symptom, and *candidum* takes it badly.

CENTAUREA DEALBATA.—H. C. R., Springfield, Ill., sends a leaf and flower and writes: "Please decide what is the proper name for the enclosed specimen whether *Centaurea declinata* or globe thistle." *Ans.* Neither is correct. The proper name is *Centaurea dealbata.* It is a hardy herbaceous perennial plant from the Caucasus and not uncommon in gardens, it has rose-colored, thistle-like flowers, and pinnate leaves that are silvery white on the under side. The globe thistle is *Echinops,* a genus of very different plants, both in flowerheads and foliage.

AQUILEGIA SEED.—An Illinois reader asks "Won't you please tell me what kind of columbine seeds to get and grow?" *Ans.* Get *Aquilegia Sibirica,* it is blue and yellow, and the earliest of all; *truncata, formosa* and *Canadensis,* red flowered; *chrysantha,* yellow, and its white flowered form or cross; *Olympica,* a fine, bold, blue and white flower; and that long-spurred peerless blue and white beauty, *cœrulea.*

HARDY PHLOX.—These have always been an eyesore to me on account of losing their lower leaves, or rather the leaves drying up and staying on the plant, thus giving it a very untidy appearance. I find that copious and repeated waterings overhead and at the roots will prevent this to a great extent. How magnificent many of the new varieties are. L. C. L. JORDAN.

Trees and Shrubs.

RETINOSPORAS.

In the spring of 1890 the late Mr. A. S. Fuller sent me a specimen of *Retinospora Fulleri,* which had originated on his grounds, being a sport of *R. plumosa aurea.* Mr. Edward P. Roe, in his book, "The Home Acre," describes the perpetuation of this new form, he having been visiting Mr. Fuller at that time. The association of these two writers, now called to other scenes, with this individual specimen adds to it, in my estimation, unusual interest. It is more vigorous in growth than its parent and is now over six feet high. It has proved quite hardy and were it not in an unusually bleak position it would receive no protection, but I place a simple windbreak around it in winter.

In the spring of 1894 while admiring the beautiful collection of retinosporas at the nurseries of Thos. Meehan & Sons, Germantown, Penn., I mentioned my one specimen, and they proposed sending me for trial as to hardiness a set of ten varieties. At my suggestion they sent in duplicate, one lot to receive inexpensive winter protection, the other to take care of themselves. Both lots were planted in clay loam in a situation somewhat sheltered from winds and where the rays of the winter's sun were scattered by the branches of intervening trees. The following varieties were sent: *R. ericoides*, *filifera*, *heptoclada*, *obtusa*, *obtusa compacta*, *plumosa* and its variety *aurea*, *squarrosa Veitchi*, *pisifera* and *Sieboldi*. The winter of 1894–5 was of unusual prolonged severity, while that of last season was quite favorable to all plants. Some of the smaller plants of one group had inverted boxes placed over them, and the others in the same group were wrapped with straw. The first winter all of the protected ones came out in fair form and apparently did well the following summer. This spring all of the protected plants are in fair form except *Sieboldii*, which did not survive.

Of the unprotected lot *Sieboldii* and *ericoides*, both died the first winter, but the balance stood both seasons. With the unprotected lot were larger specimens of plumosa and its golden and silver forms, which are all right right. One *plumosa aurea* which I wintered in a cellar, and planted out quite early is showing its new growth sooner than those wintered outside. Some of the unprotected showed a little brown at the tips, especially *squarrosa*, but the cutting back they naturally should receive removed it all. I am satisfied that even in this climate, if sheltered positions be chosen, a more extended use of these handsome dwarf evergreens, and especially the *plumosa* form, can be made. Some, while not actually dwarf, can be grown as such for many years as they bear pruning well.

Picked specimens of *plumosa aurea* are well worth the care and attention given any plant that is grown in a tub and wintered in a cool cellar by those who fear the severity of their winters.

W. C. Egan.

RHODODENDRONS.

I have much pleasure in sending you lists of rhododendrons. The first in order contains varieties that I have grown here for a great many years and which can be relied upon as hardy with ordinary care. They suffer with dry weather, and I water them two or three times during the summer.

RHODODENDRONS THAT ARE PERFECTLY HARDY IN NEW ENGLAND.

Album Grandiflorum, blush, fine truss and foliage.

Alexander Dancer, bright rose, lighter center, one of the finest.

Archimedes, rosy crimson, lighter center.

Bacchus, crimson, enormous truss, fine habit.

Bluebell, blush, light purplish margin.

Caractacus, rich purplish crimson, splendid truss, foliage and habit.

Charles Bagley, cherry red, fine truss and habit.

Charles Dickens, dark scarlet, fine habit and foliage.

Delicatum, blush, changing to white with a distinct brown spot.

Everestianum, rosy lilac, spotted and fringed; free blooming.

Giganteum, bright rose, large truss.

Guido, deep crimson.

Hamlet, purple, richly spotted.

H. W. Sargent, crimson, enormous truss.

Charles Sargent.

James Bateman, clear rosy scarlet.

Kettledrum, rich purplish crimson; a fine hardy and free blooming sort.

King of the Purples, distinct in color.

Lady Armstrong, pale rose, much spotted.

Lady Clermont, rosy scarlet, intensely blotched.

Lady Francis Crossley, rosy pink or salmon.

Mrs. Harry Ingersoll, deep rosy lilac, greenish center.

Mrs. Charles S. Sargent.

Mrs. Milner, rich crimson.

Old Port, rich plum color, distinct.

Rosabell, pale rose.

Roseum elegans, rose color.

Sir Thomas Sebright, rich purple with bronze blotch.

HALF HARDY VARIETIES.

The following are not quite reliably hardy but with extra care will only occasionally get injured.

E. S. Rand.

F. D. Godman, crimson, fine blotch.

Francis Dickson, scarlet, late.

George Paul, crimson, finely spotted.

J. M. Brooks.

Minnie, blush white, spotted with chocolate.

St. Simon, rich purplish crimson, spotted.

The Queen, blush, changing to white.

Vauban, mauve, with rich yellow blotch.

James McIntosh, rosy scarlet.

Mrs. Arthur Hunnewell, pink, primrose center.

Mrs. John Clutton, the most beautiful hardy white rhododendron in cultivation.

RHODODENDRONS THAT ARE WINTERED IN CELLARS BUT PLANTED OUT OF DOORS IN SUMMER.

The following list is of varieties that I have not tested altogether out of doors, but remove them to the cellar over winter, it is very probable, however, that many of them would succeed with you as the climate must be much milder at Pittsburg than here. A good supply of water is indispensable for entire success in their cultivation.

Baroness Rothschild, crimson, deep margin.

Broughtoni.

Auguste van Geert, rosy purple.

Concessum, clear rose, light center.

Countess Normanton.

Cynthia, rosy crimson.

Duchess of Sutherland, rosy lilac, deeper margin.

Frederic Waterer, crimson, very showy.

Helen Waterer, center white, edged with crimson.

James Mason, light center, deeper edging.

Joseph Whitworth, rich dark lake, spotted.

Kate Waterer, rose, yellow center.

Lucidum, purplish lilac, brown spots.

Marchioness of Lansdowne, pale rose with intense black spot, very distinct.

Michael Waterer, crimson, spotted.

Marie Stuart, blush, maroon spot.

Mrs. Charles Thorold, bright pink, yellow center.

Mrs. Shuttleworth; scarlet, lighter center, much spotted.

Mrs. S. Simpson, white, spotted.

Mrs. J. P. Lade, French grey, deeper center.

Mirandum, light rose, spotted.

Mrs. Mendel, pink, rayed white, yellow center.

Mrs. John Walter, light center, edged pink.

Princess of Wales.

Princess Mary of Cambridge, light blush, deeper edging.

Sappho, white, blotched with maroon.

Scipio, rose, with deep colored spot.

W. E. Gladstone, pink, fine truss.

Wm. Cowper.

The above rhododendrons can be all seen in the most healthy condition anytime by visiting Wellesley [near Boston. —Ed.]

H. H. Hunnewell.

Having decided that a rhododendron garden must become one of the features of Schenley Park, and with the view of making a proper selection of these lovely shrubs, we wrote to Mr. H. H. Hunnewell of Wellesley, Mass, asking if he would kindly aid us. The above notes are from his reply, we giving Anthony Waterer's description of the varieties, and he has most courteously allowed us to use them in Gardening. But many of our readers may ask, "Who is Mr. Hunnewell?" He is the owner of the most extensive and beautiful private garden in New England, if not the handsomest in the country, and it contains the finest collection of rhododendrons hardy, half-hardy, and tender we know of in any garden. It is 22 years since we first visited this garden and we have been a frequent visitor to it ever since, it was an old garden then, and the finest in America, and its annual displays of rhododendrons were so marked a feature that at that time the garden was opened to the public that all might see them. The finer hardy rhododendrons are planted out in vast number, those that are barely hardy are favored a little with sheltered positions, and the tender ones are planted outside in April, and lift d from the open ground, preserving their ball of roots intact, and heeled in in a very large stone cellar built a purpose, and well lighted and ventilated, and where frost is just excluded from it inside. Rhododendrons stand this double planting every year with remarkable success. The above lists are exceedingly valuable, they are the opinion, gained by half a hundred years' extensive practice of the one who knows most about these plants in a garden sense in the country.

THE CAPITOL GROUNDS, WASHINGTON, D. C.

No bedding plants are used in the U. S. Capitol grounds, but it is a very interesting place for a lover of plants to ramble through. Curiously enough the appropriations for the keeping of the grounds are always so small that little more can be done than the cutting of the grass and sometimes that is large enough for hay before it is cut, the pruning of trees when the wind plays havoc with them, and the sweeping of the walks. A natural looking border surrounds three sides of the huge building; in it the shrubs, after being planted, are left to take care of themselves, and the intervening spaces are thickly carpeted with low growing shrubs and hundreds of the old fashioned herbaceous plants. On the southern and western borders there are plants thriving beautifully which one would hesitate to plant in any other part of the city, the ground is all artificially made and slopes gradually toward the sun, and this, with the protection afforded by the massive building, enables some plants to stand the winter which in other places would succumb. In one corner there is a flourish-

ing colony of *Ficus repens* growing against the wall. In another place *Poderia lucida*, usually grown as a greenhouse climber, comes up year after year. The common laurel or sweet bay tree (*Laurus nobilis*) occasionally gets winter killed, but young plants make specimens in a surprisingly short time. During the spring and summer months at almost every few strides something fresh and striking may be seen, the "gorse" or "whin" (*Ulex Europæa*) is as finely in flower in March on the Capitol terraces as on any of the Scottish hills. A little later on the trifoliate citrus is covered with its pure white flowers, and in the fall the yellow fruit is a gorgeous sight. This plant is perfectly hardy over a wide area of the country, and should be planted more frequently; it is attractive even in the dead of winter. [Although there are several plants of it at Dosoris, and they have existed there several years, it is not hardy there.—ED.] Spring flowering shrubs are well represented and after them the Japanese and Chinese hydrangeas in red, white and blue make a great show. Crimson Rambler rose, in wild profusion, is just over, and now the Japanese trailing rose (*R. Wichuraiana*) is a perfect bed of white. Big clumps of three or four species of *Yucca*, principally *filamentosa* and its varieties, and *Y. angustifolia* are flowering profusely, and large groups of foxgloves add to the effect, and in a short while the blue flowered herbaceous clematis (*C. tubulosa* and *C. Davidiana*) will be in great beauty. The everlasting pea (*Lathyrus latifolius*) succeeds well; besides the type there are two varieties, a pure white one and one intermediate in color between white and pink; the white variety is a very telling flower, but it has a habit of not coming true from seed. G. W. OLIVER.

Washington, D. C.

HARDY SHRUBS IN BLOOM JUNE 23.

The late blooming spiræas are now making an excellent display. Billard's spiræa has been in good bloom for the past ten days. The panicles of reddish pink flowers are very conspicuous. *S. Bumalda*, an elegant species, has been a mass of rose colored flowers for the past week, it gives a succession of flowers until September and is of compact habit, easily grown, and hardy; it is one of the best of the late blooming spiræas. *S. sorbifolia*, a Siberian species and common in most gardens, has thyrse-like panicles of showy white flowers. It is now at its best. *S. ariæfolia* has graceful nodding panicles of fleecy white blossoms, it will be in full bloom in about two days. We greatly admire this spiræa and think it is the best of the late blooming ones. The different forms of *S. callosa* are in bloom, the white variety is worthy of special mention because of its compact habit and profusion of bloom. *S. virescens* has corymbs of whitish pink flowers in succession for some time. *S. Margaritae* has large cymes of deep pink and is very showy. *S. salicifolia*, in different forms, is in bloom. *S Pallasii* much resembles *S. sorbifolia* and is now in flower. Other spiræas in bloom are *S. luxuriosa* with sparse, white flowers; *S. Blumei* has large reddish pink panicles, *S. Douglasii* is just coming into flower, it has rose colored panicles, and its so-called variety, *Nobleana* with loose panicles of reddish flowers; *S. Lenneana*, a very handsome form, reddish pink, is considered a hybrid between *S. Douglasii* and *S. salicifolia*, it resembles the latter in its foliage and the former in its flowers. It is now coming into bloom; *S. tenuissima* is still blooming quite freely.

The silky dogwood (*Cornus sericea*) is in good bloom and the rough leaved dogwood (*Cornus asperifolia*) with smaller white cymes than the former follows it closely. The old osier dogwood (*C. stolonifera*) is covered with dull white colored fruit, almost ripe.

Hall's honeysuckle perfumes the air in its neighborhood. It is one of the best of the climbing kinds. It suffered quite severely here last winter, in many instances being killed down to the ground, but in every case we know of it has started away again vigorously. *L. sempervirens* and *L. flava* are still giving us few flowers. The numerous forms of the Tartarian bush honeysuckle are displaying their differently tinted yellow and red fruit, but they cannot begin to compare with the different forms of *Lonicera bella* for a grand display of berries. At the present time *L. bella albida* is just loaded down with a magnificent show of deep red fruit. A well known nurseryman, when we called his attention to it the other day, raised his hat and declared it to be remarkably beautiful. *Viburnum Nepalense* and *V. nudum* are almost past.

Azalea viscosa with pretty whitish flowers has been in bloom since nine or ten days. *Andromeda speciosa* with handsome bell-shaped blossoms, and one of the prettiest of the andromedas, is in fine flower.

Rosa Wichuraiana is covered with blossoms, and what a rampant grower it is, throwing out growths 8 and 10 feet long in a season. The numerous white roses with yellowish centers are showy. The prairie rose (*Rosa setigera*) with variable rose-colored, whitish, corymbs, is making a handsome display. Scattering blooms are to be found in *R. rugosa* and its forms.

Itea Virginica has had pretty white spikes for the past two weeks. It is slow growing, but its flowers in June and showy tinted foliage in the fall render it a very desirable shrub.

The different varieties of *Deutzia crenata* are just passing out of bloom. The variety Pride of Rochester is an excellent form, having large double white and tinted flowers, and it opens a little earlier than any of the other forms. *Watereri* is also a good double form.

Santolina Chamecyparissus (lavender cotton) a low sub-shrubby plant often used for edging, when allowed to grow at will makes dense large spreading clumps. It has numerous chamomile-like flowers.

The Japan tree lilac (*Syringa Japonica*) has finished blooming. Its large fleecy panicles of white were very conspicuous. It is not profuse, but the showiness of the individual panicles makes up for that. The Amoor lilac (*Syringa Amurensis*) refused to give us a single bloom this year.

The stag horn sumach has flowered and the plumes are now commencing to assume their crimson tints. The smooth sumach is in bloom. New Jersey tea (*Ceanothus*) is still showy.

The Ibota and Chinese privets have been in bloom since eight or ten days and both are beautiful.

The common thyme makes real pretty dense mats in front of shrubbery groups when allowed to spread, and is now a mass of purple flowers.

Cytisus hirsutus has made a fine yellow show for the past two weeks. *C. nigricans* is now in bloom and *Genista tinctoria* is in fairly good flower. Our earliest flowering hydrangea (*H. Pekinensis*) has been displaying its white flowers since a week. The shrubby cinquefoil (*Potentilla fruticosa*) is covered with yellow blossoms and this will last more or less throughout the summer. Although usually growing in its native state in wet ground it will grow almost anywhere.

Colutea arborescens (bladder senna) is covered with yellow flowers and bladdery pods. It flowers freely and ripens seeds abundantly throughout the whole season.

Elæagnus longipes is laden with almost ripe fruit and makes a nice show. *Daphne alpina* is covered with reddish berries. *Rhamnus Frangula* displays reddish-like berries with small inconspicuous flowers on the same branches.

Staphylea trifoliata (bladder nut) is laden with bladdery pods. The dwarf chestnut (*Castanea pumila*) has been in full flower since a week, and individuals here and there of the native sweet chestnut and Spanish chestnut are also in bloom.

The western bean tree (*Catalpa speciosa*) was in full flower about two weeks since and is now about past. The native basswood is in bloom. The different forms of amelanchier (Juneberry) have ripe fruit that is quite pleasant to eat. Large masses of the common elderberry now look strikingly beautiful in the landscape, as the white cymes show up among the edges of copses and woods surrounded by rich masses of green drapery. *Magnolia macrophylla* has been in bloom for a few days. The enormous flowers when spread out are almost as large as a man's hat and very beautiful. It requires a warm situation here. JOHN DUNBAR.

Highland Park, Rochester, N. Y.

PROPAGATION OF HARDY HEATHS.

Erica carnea is the best hardy heath we have got. It grows with remarkable freedom, and always flowers profusely in early spring. *E. vagans* in different forms is our next best. It does not appear to be quite as hardy as the former, and it never flowers very abundantly with us. *E. tetralix* and *E* (*Calluna*) *vulgaris* have so far done badly; appearing to have gone back more from the effects of summer heat, than winter cold.

We find that the quickest method of propagating the hardy ericas is by layering. Use leaf soil, and sharp sand sifted and mixed in equal proportions, and raise this in a mound around the stems and in the centers of the clumps amongst the branches. In a very short time every branch will root freely in it. When the branches or layers are well rooted, cut them from the parent plant with a sharp knife, being sure to secure plenty of roots to each shoot and pot them in 2 or 3-inch pots according to the size or strength of the layers, plunge the pots in a cool shaded place, and keep well watered. When they have commenced to root afresh, remove them from the shade to an open exposure where the conditions are still cool, for ericas do like to have their roots cool and moist. By fall excellent stocky plants can be obtained. The pots can be plunged in a cold frame over the winter and in spring they may be turned out of their pots, and planted where desired. JOHN DUNBAR.

Highland Park, Rochester, N. Y.

TRUMPET CREEPER ON CLOTHES POSTS.

I have seen several times in GARDENING that trumpet creeper has been recommended for covering clothes line posts, and very pretty it is for this purpose, but it is such a nuisance. My kitchen was covered with it, and when the vine was in bloom it was the admirations of all who saw it, but it sprouts up all over the yard and is a perfect pest. There seems

no holding it in one place, or ever killing it if once it gets a good hold. Plain fencing wire makes the cheapest and best clothes line, the twisted wire breaks a strand at a time and generally tears a hole in some of the clothes before you are aware of the break, either will last a long time. LUCY G. CHRISMAN.

Rockingham Co., Va.

A MOCK ORANGE.—M. W. S. Mankato, Minn., writes: "Enclosed herewith please find leaves and flowers of a hardy shrub that I have been calling a jasmine, but a party to whom I sold it this spring and with whom it is now in bloom calls it a syringa, and is much disappointed. What is the proper name of it? It is perfectly hardy in this climate, standing 30° below zero." *Ans.* The sprig sent is is of *Philadelphus coronarius*, the fragrant mock-orange or "syringa," as it is often called: No wonder your customer was disappointed. There is no true *Jasminum* of any kind hardy in Minnesota.

SOME TRUE JASMINES? Asks M. W. S.—*Ans. Jasminum nudiflorum*, an arching viney shrub, evergreen at Washington but deciduous at Dosoris, and which has yellow blooms in mild weather in winter or earliest spring. *J. officinale*, the common white jasmine, a vine, barely hardy at Dosoris. *J. Sambac*, or the Grand Duke jasmine, a favorite pot plant in our dwellings.

THE EUROPEAN LINDEN.—G. W. M., Philadelphia, asks: "What is the common and botanical names of the tree, a leaf and flower of which I herein enclose?" *Ans.* It is one of the forms of the common European linden (*Tilia vulgaris*). We may remark that there are three distinct species of European lindens commonly catalogued as *Tilia Europæa*, they are *T. platyphyllos*, *T. vulgaris*, and *T. ulmifolia*, and of each of these there are several varieties. None of the varieties can be definitely named without the fruit as well as foliage and flowers, to judge from.

Roses.

THE ROSE GARDEN, JACKSON PARK, CHICAGO.

The conclusions drawn from this year's flowering of the World's Fair rose garden confirms, in the main at least, those noted last year. The blossoming season, however, is from two to three weeks in advance of that of '95, owing to the unusually warm weather in April. But a ter some th ee weeks of cool rainy weather, during which most of the roses did finely, a sudden change to oppressive heat on June 5, brought the first and chief flowering to an abrupt close. The experience of every year since the garden was established confirms the fact that roses are a delightful possibility even in Chicago, providing the varieties are well chosen and well tested methods of protection and cultivation are followed.

Among the varieties used here Mrs. John Laing stands at the head as the most satisfactory all round rose, yet the past winter's experience proves that it is slightly less hardy than many other varieties used. [Perfectly hardy at Dosoris. —ED.]

PINK ROSES.—Mrs. Laing being the leading rose is, of course, also the leading flower in its color. It blooms abundantly in June and gives a fair number of flowers throughout summer and fall. Jeannie Dickson stands next and is good, but like Laing is also somewhat tender. Then Anne de Diesbach, which seems to me the finest pink rose and that no one need wish a finer rose in any color. It is nearly like Paul Neyron in size, color and habit, but, as grown here Diesbach is rather more floriferous and it is handsomer in the form of its flowers, particularly in the fullness and arrangement of the central petals. Where it does well it certainly is an ideal rose. Magna Charta makes a good impression; it enjoys a rather cool atmosphere and plenty of moisture. But it blooms but once, and has never any roses after the June season closes. Other pink roses include Duchesse de Morny, John Hopper, Paul Neyron, Baroness Rothschild, an exquisite shell pink flower of beautiful shape; Caroline d' Arden, which flowers abundantly in the regular season and is also one of the best summer bloomers; Mme. Gabriel Luizet, a good variety similar to Jeannie Dickson in foliage and flower, the petals having the same peculiar, silvery border, Belle of Normandy which is very hardy, the stems coming out green in spring even when fully exposed during winter. This variety is much better this year than ever before, really one of the best in the garden. Last year both Normandy and Francis Levet refused to open their buds and so did Francis Treve, a red rose, but all have done remarkably well this season. The secret of the difference is no doubt found in the contrast between the hot, dry weather prevailing during the rose season of '95 and the cool moist weather that continued until the major part of the roses matured this year. Auguste Mie is another pink rose that has behaved in the same way. The remaining pink and rose colored flowers are Comtesse de Serenye, La France, and G. M. Malvande. The cream of the list, to my mind, are Mrs. Laing, J. Dickson, Anne de Diesbach, Paul Neyron, Baroness Rothschild, Belle of Normandy and Comtesse de Serenye.

WHITE ROSES.—This list includes but four varieties barring the moss and rugosa roses that come under their own headings. They are Merveille de Lyon, Mabel Morrison, Perle des Blanches and Mme. Plantier. Although the last named flowers in June only, no garden can afford to be without it because it is so hardy and flowers so generously. Of the white hybrid perpetuals, Merveille de Lyon is the best bloomer, though some think Mabel Morrison is a more charming flower. As grown here I can scarcely choose between the rather loosely built Morrison and the cup-shaped Merveille de Lyon with its short, closely massed inner petals. While classed as white roses both show more or less pink, Morrison sometimes bearing a flower that is pale blush throughout or with petals more or less tinged with deeper pink along the edges, and Merveille de Lyon beautifully flecked with clear pink on the border of the petals. Both resemble Baroness Rothschild in habit and Morrison is decidedly like it in the build of its flowers. Perle des Blanches seems to be only semi double and is less hardy than has been supposed, for it froze back badly last winter when protected as the bulk of the H. P. roses were and will hereafter be classed among the varieties that must be pinned to the ground in winter.

RED ROSES.—Marshall P. Wilder continues the first choice among reds. It is splendid in color and in abundance of bloom and no variety flowers better throughout the season. Nearly as prolific and richer in the velvety effect of its magnificent flowers stands Alfred Colomb, a rose among roses. Earl of Dufferin is also a choice red rose of the vivid red class similar to Wilder, and Gen. Jacqueminot is excellent, giving great satisfaction. Other good ones are Souv. de Louise van Houtte, like Gen Jacq. but darker in color; Jean Liabaud, a vivid scarlet crimson, velvety rose; Peonia, Fellemberg, a semi double beautifully colored rose that shows a generous abundance of bloom that would reassure even a pronounced rose pessimist, and that goes steadily on flowering until fall. This variety froze back pretty badly on the exposed wood but it throws up such an abundance of new shoots, every one of which is tipped by a big cluster of buds, that it sometimes outstrips its unfrozen neighbors.

DARK ROSES.—Prince Camille de Rohan is the leading dark variety and is a rich, velvety rose of great merit. It does well here, being hardy as any H. P. and flowering well. Its deep crimson maroon blossoms are an essential note in the color scale—one that corresponds to the bass note in a chord of music. Blooms of the Prince last well, retain their color and do not fade to the objectionable purple tone that soon spoils the effect of most dark roses.

MOSS ROSES.—The old White Bath and the common moss are the most satisfactory moss roses here, being hardy and blooming well. The white one bears the loveliest buds and the common moss the sweetest flowers among moss roses. Salet is hardy too, and flowers abundantly, but the blooms fade quickly and to a disagreeable color. For me they quite spoil the effect of a bed and would be better omitted. Blanche Moreau, white, and Comtesse de Murinais, rose, are the hardy varieties among the so-called perpetual flowering mosses. The Comtesse seems to be the most reliable bloomer, the other showing but few flowers this year, although they did fairly well last year, but *all* belie their title by refusing to bloom at all after the June flowering.

CLIMBING ROSES.—The climbing roses in beds have done less well this year than last, being less vigorous in growth and more chary of flowers, excepting only Queen of the Prairie, which is good. The last is used in bush form as a border to the bed of frightened-looking standard roses. Gloire de Dijon, Reine Marie Henriette and Mme. Pigny froze back badly and flowered very sparsely. Tea roses, however, are given but small space here and are not expected to amount to much. But these three climbers should be of great value to amateurs who are willing to give them the extra care they need in the way of winter protection. Turned to the ground, well covered with dry leaves and then sheltered by boards to shed water I think they would do well even in this cold climate. The Pride of Washington is trained on two horizontal wires and used as a hedge that entirely encloses the rose garden. It has grown in this position since the spring of '92, winter killing more or less every year. The hedge looks better now than ever before, being quite full and even in growth everywhere except for about one hundred feet in each direction at the southeast corner of the garden. Why it winter killed here so much more than elsewhere is unaccountable on any visible grounds.

RUGOSA ROSA.—Rugosa rosea, and its white form and the lovely hybrid rugosa, Mme. Georges Bruant, are as good as ever. Nothing could be more satisfactory than their thrifty growth, handsome foliage that is in itself more ornamental than that of many shrubs grown for their foli-

age alone, and in their wealth of large artistic flowers. The rugosas proper bear single blossoms with centers of thickly crowded golden yellow stamens, and Mme. Bruant is white, semi-double and with lovely buds that are ideal in shape, although this year for the first time I notice many that are imperfect. The gardeners think this the result of insect enemies, but I am not certain that this is not due to cold weather coming just as the buds reached the critical stage.

CREEPING ROSES.—This class is ably represented by *Rosa Wichuraiana*. it makes a flat matted border around one of the beds, the small shining leaves massed so closely as to hide the ground, and buds are now showing plentifully on the numerous twigs. It is allowed to roam and root at will over the bed, as the stock produced in this way is to furnish plants required in other parts of the Island, where it is already seen as isolated spots of dark green on the lawns near the lagoons. And this reminds me that this pretty Japanese creeper carpeted with nice effect, a bank of the water-garden at Tower Grove Park, St. Louis, last summer.

WINTER PROTECTION OF THE ROSES.

The hardiness of the roses was given a severe test the past winter, since none were pinned to the ground except tea and hybrid tea roses, and what is here spoken of as the Rothschild class, viz., Baroness Rothschild, Mabel Morrison, Merveille de Lyon, Margaret Dickson and Her Majesty. But hereafter Mrs. John Laing, Jeannie Dickson, Perle des Blanches, and Magna Charta are to be treated likewise. Even with this thorough protection Margaret Dickson and Her Majesty froze back badly. All the remaining hybrid perpetuals here named were given no protection beyond banking dry leaves around them, well worked in among the stems, to the height of about twelve inches, and all did well except the few already mentioned as being now classed with the more tender Rothschild group.

Moss roses, rugosa and Mme. Plantier were given a root mulch five inches deep of dry leaves, and this has not been removed but remains as a summer mulch. The hedge of Pride of Washington was banked up with leaves. When the dry leaves were removed in April from around the hedge plants and those of the hybrid perpetuals named and the more tender ones uncovered and lifted they all were given a few inches top dressing of two year old stock yard manure, and this remains as a summer mulch.

As a whole the garden looks better this year than ever before, proving that coolness and moisture are conducive to good results, and leading to the conclusion that rose growing is not beyond the ambition of any painstaking lover of flowers. Certainly a group of Marshall P. Wilder, Anne de Diesbach or Merveille de Lyon in full flower is generous payment for the small expenditure of money and intelligent care they require. F. C. SEAVEY.

Chicago, Ill.

HOW I TREAT MY ROSES.

Roses did not do well here last winter, I think the covering may have been too thick, as the winter was mild. Jacqueminot, Mme. Wood, Dinsmore, Gen. Washington, Mrs. John Laing, etc., were badly injured, whilst La France all three, Clothilde Soupert and such are dead. Hermosa and Mrs. Degraw are all right

As I am quite a local celebrity on the rose in this part, I will detail how I manage my hybrid perpetuals: I throw off the heavy covering first fine days of spring, then when spring seems certain, I raise the bushes to frame or stake them, growing not more than 4 or 5 canes to a bush, cutting out during the fall all old wood. Finding the breeding place of many insects is on the surface soil, near the roots I remove the old and replace with new soil well mixed with wood ashes. On the spring growth I watch very closely for that accursed little worm that destroys the surface of the leaf, and if I find him kill him, if not I take my garden syringe and go over the bushes carefully with a wash of about a tablespoonful of salt to a gallon of water, and this if not totally successful, I follow with hellebore, half an ounce to each gallon of water, letting it stand a day after mixing before using now, and use about every five days, I have a pretty clean bush. Then when the roses are gathered, I keep a barrel of new manure in my stable and of this I throw a quart or so in my two-gallon watering pot, and if the day is warm it will assert its presence by evening, when I thoroughly drench the roots of one or more bushes, which usually brings me a scant supply of roses during summer and fall, after the first crop is gathered. But our climate is so severe that even Madame Plantier needs covering in the winter, and yet I have had over five hundred blooms from one cutting of that variety. But what if it does need eternal vigilance to grow roses, does it not pay? E. CARTWRIGHT, M. D.

Decorah, Iowa.

ROSE BUGS—DON'T EAT POPPIES.

Will you be kind enough to give us an article on poppies, how and when to sow the different kinds so as to have plenty of blooms when the rose bugs are here? Poppies are the only flower the rose bugs will not eat, and I would like to have something to defy them with.

The first day the bugs hatch they come down two spring branches that waste in our meadow in columns like swarms of bees, do not seem able to fly high or far from the water the first day, but after that they take in the whole country. If I owned the hatching grounds I would salt them well and put an end to this plague. This has been done and destroyed them. Why will not people believe this and follow them up to their hatching grounds? A few sacks of salt applied there would free the neighborhood of this fearful pest. L. G. CHRISMAN.

Rockingham Co., Va.

Apropos of the above, Dr. J. A. Lintner, the eminent New York State Entomologist, writes us:

"I think that your correspondent has traced the bugs to their breeding grounds, and when this can be done the most effectual work against them is to be done there. How this is to be done is the question. I would suggest draining the swampy ground in which I understand the breeding grounds are. Salt in large quantity may possibly prove effectual. I would be glad to have it tried, for it has not, so far as I know, been experimented with."

OUR ROSES.

They are past their best. A large bed that was planted this spring is giving us a lot of nice flowers. Mrs. John Laing and Captain Christy are especially good. But the most conspicuous rose in the garden is Crimson Rambler; we have an arch covered with it, and what a lovely flower it is! Last year it was much infested with mildew, but this year, so far, there isn't a trace of the fungus to be found about it. It is the cleanest rose in the garden and a very free grower.

D. FRASER.

Mahwah, N. J., June 22, '96.

WINTERING ROSES.—J. C. B., Wales, Mass., writes: "Last fall I had fine H. P. young roses and covered them with earth, then with leaves and coarse manure, letting it all stay there till the middle of April—as it was so cold. When the covering was removed some of the bushes were green, but the shoots have since turned black. What was the cause? This climate is at least as cold as Boston." *Ans.* We believe you covered them to death. Had you bent them down close to the ground in November, and then about the end of that month laid inverted sod on top of the canes or covered them over with earth as you would raspberry or grape vine canes, you would have done all that was necessary and your roses would have survived. Don't cover up very soon in fall, and be sure to begin to remove a little of the covering long before the middle of April, but not all of it till sharp frost or piercing winds are past.

TOBACCO STEM MULCH FOR ROSES.—While everybody else's bushes have been more or less riddled by slugs, etc., I have been able to cut my roses with long stems of lovely foliage, absolutely without blemish. I owe this happy circumstance to a thick mulch of tobacco stems, as not a drop or grain of insecticide has been applied to the bushes. It is the first time I have tried the stems, and I am well satisfied with the result. L. C. L. JORDAN.

ROSES.—Crimson Rambler, 12 feet high, will be open in a few days; it has 53 clusters on it. I am getting to like Empress of China. When the plant is strong enough to retain half a dozen strong shoots, it will make a good show. The rugosa hybrid Agnes Emily Carman is fine in color and a good companion to the rugosa tea Madame Georges Bruant.

Chicago. C. W.

The Greenhouse.

ACHIMENES.

These are beautiful summer-blooming pot plants, having flowers something like gloxinias. I have been told that mine are unsurpassed both as to size of flowers and beauty of foliage, and yet the treatment I always give them is simple in the extreme. I plant them quite thick in 6 or 8 inch pots, the soil being nothing more than rotted sod. They never get more than an hour of the very early sun. In hot weather they need abundance of water, as the least dryness will cause both flowers and foliage to wilt badly. A little liquid manure once or twice a week is good. They can be grown either tied to a stake, or else on a bracket hanging over the sides of the pot. In the latter case the red of the under side of the leaf shows and looks very handsome. They have no insect enemies except red spider, and that will not bother them if showered overhead every day. After they begin to die down in the fall, gradually withhold water. I keep them in the same pots all winter, and let them get absolutely dry. They must not freeze. Repot in February or March. They increase so rapidly that a few corms will in the course of a few years fill many pots. They come in vari-

ous shades of red and purple, also white. Nicholson gives very elaborate directions for their culture, but they succeed finely with me treated simply as above.

Bergen Co., N. J. L. C. L. JORDAN.

THE CHINESE PRIMROSE SEEDS WERE GOOD.

Early last March I purchased from a reliable seedsman of Allegheny a number of packages of various kinds of seeds, among others *Primula Chinensis* (mixed). Every precaution was used in sowing and watering these seeds, and when I had waited about five weeks I reported to the seedsman that while all the other seeds were doing nicely the Chinese primula failed to germinate. As I am well aware that seeds are not sold under any guarantee I made no claim, but merely mentioned the fact which I believed to be true, that the seeds were bad.

The seedsman told me that some people were more *lucky* than others (I don't believe in luck), but he knew the seed was good, and probably more out of courtesy than anything else he gave me another package. About two weeks after sowing the second lot of seed in I noticed the first beginning to come up. I believe that now every seed in the first and second packages has germinated, and as I wrote to the seedsman, "I have primulas to burn." I offered to pay for the second package, but the seedsman refused to accept payment and said he preferred a satisfied customer.

I merely write this to warn other amateurs about condemning seeds that are good. I hope I have learned my lesson thoroughly from this experience.

New Brighton, Pa. E. MAYER.

A NEW FERN

(*Lomaria gibba blechnoides*).

The photograph of these ferns was taken when the new plant was about 18 months old from the spores. This fern is a bi generic hybrid, a cross between *Blechnum Braziliense* and *Lomaria gibba*; in appearance it somewhat resembles *Lomaria gibba platyptera* but is more robust than that variety; and further it differs from that variety in that it comes freely from spores. Amongst seedlings which I have raised from it, are two varities, one having green fronds, the others coming red like the young fronds of the *Blechnum* referred to.

The trouble I had in finding out whether the plant was really new or not convinced me of the need there is in this country of a national horticultural society where all questions in regard to nomenclature of plants could be settled. I am well aware of the work done by the S. A. F., but that is merely a trade organization, and of course can not be expected to do the work that a national society could do. To return to my subject I took a plant of my fern (expecting to find a name for it) to the Mass. Hort. Society's annual exhibition in 1893, and was awarded a gratuity for it, but gained no information as to whether the plant itself was new or not. Again last fall I exhibited a plant of it at our local Hort. society's exhibition, and was awarded a silver medal for it, as a new plant. My next move was to exhibit plants of it at the New York Florists' Club exhibition at Madison Square Garden on Thanksgiving, where it was awarded a first-class certificate as a new plant.

At the instance of a friend I sent a plant of it to Prof. Baker, Kew Gardens, London, Eng. His answer was published in the *Gardeners' Chronicle* Dec. 21st, '95, and was as follows: "The characters agree with a plant in Herb. Kew from Herbarium I. Moore marked *Lomaria gibba*, crossed with *Blechnum Brasiliense*, Royal Horticultural Society's Garden, Chiswick, 1876." In the letter of acknowledgement which I received signed by the director, the name there given is *Lomaria gibba* var. *blechnoides*.

ALEXANDER MACLELLAN.

Newport, R. I.

THE SWORD FERN

(*Nephrolepis*)

I have a fine sword fern, some of whose gracefully curving fronds measure forty inches in length. What treatment must I give it this summer to insure as great success this coming winter, the plant is but two years old, is in an 8-inch pot and I have removed fifteen young plants from it during last winter. Speaking from my own experience it requires an abundance of moisture and light but no sun and a cool room, but will it do as well in the summer without rest? F. S. A.

Hammond, Ind.

Ans. Judging from the success that you already have had we would advise you to keep on with the culture that you have been practicing. The sword ferns are evergreen species and need no rest apart from that induced by the natural cooler temperature of winter even in the house or greenhouse. But remember they won't stand frost.

VIOLETS IN POTS FOR SPRING.

If your correspondent W. S., Otis, Ind., will work up a stock of the *Canadensis* violet and its white variety, he may pot it in late summer, and keep it in frames—or out either I fancy—but plunged. It is only little inferior in size or fragrance, and much the hardiest sweet violet. Here and south and north to the lake it is hardy and sweet and good enough. Some florist of this city sold a lot of it it pots this spring. It is also a capital edging for herbaceous beds, mixed with chionodoxas or other small bulbs. My boys gathered flowers of this species on a lawn here at Christmas, more than once, and in quantity in 1890 or 1891.

Trenton, N. J. JAMES MACPHERSON.

[The violet you refer to cannot be *Canadensis* because it is a tall, jointed stemmed branched species with small white or tinged purple (newer blue) flowers, that are not fragrant; the plant grows from one to two feet high and is a common native in our rich woods. No doubt the violet you mean is the run-wild form of the European *Viola odorata*, both blue and white flowered forms of it of low-growing spreading habit, have naturalized themselves very abundantly in some places.]

CRINUM KIRKII AND C. ORNATUM.—O. H., Two Rivers, Wis., writes: "Kindly tell me how to treat *Crinum Kirkii* and *ornatum*. Is it best to keep them in the house, or plant them out? If I put them out shall I sink the pots, or plant them in the ground? If planted out should the bulbs be covered, or left partly out of the ground? What shall I do with them during the winter?

Ans.—Turn the plant out of its pot, and plant it out into your garden, giving it a place protected from the winds and scorching sunshine, and let the ground be deeply worked,—an east-facing border would be an admirable place for it. If the soil is deep and sandy or gravelly or even a well drained loam plant the bulbs deep enough that the earth may about cover its neck, but if of a retentive or clayey nature plant the bulb about twice as deep as it is now in the pot. Lift them in September or October and keep them dry as you would a gladiolus.

Miscellaneous.

BIRDS IN THE GARDEN.

Just what birds will make their homes in our garden, or even pay us passing visits will depend upon several obvious circumstances. The size of our ground; the number of trees and shrubs in it; whether it is watered by pond or stream; the location—whether in town or in a thinly inhabited situation, are all governing factors. Certainly no garden will be entirely destitute of birds.

For many summers past the writer has spent many weeks at the country place of a friend in New Rochelle, N. Y., but well away from village limits. The estate has a considerable frontage on Long Island Sound, and is an ideal place for birds. Every bird that flies, almost had it been said, may be seen here, if not breeding, during migration. And the astonishing circumstance is that the owner of this bird-paradise has not, or, until the fact was pointed out, did not have a suspicion that birds, other than the commonest varieties, abounded upon the premises. But the bird-student here may see crows, snipe, plover, ducks, heron and gulls—these on or about the shore, and, of course, at varying times of year. In spring and fall, among the trees and shrubbery, he will study the sparrows of Boreal breeding habits, the fly catchers and those elusive and often baffling little beauties the wood warblers. All summer long he will renew acquaintance with bluebird, song sparrow, ovenbird, catbird, bluejay, chape, bobolink, American goldfinch, vesper sparrow, wood pewee, house wren, chipping sparrow, wood thrush, vireo (the red-eyed, the white-eyed and the solitary), oriole (the orchard and the Baltimore), of course robins and so many others that this column would seem but a check-list were they fully enumerated. And most of these birds actually nest upon the place.

In winter he will surprise chicadees, nuthatches, horned larks and purple finches industriously searching trunk, branch and thicket for food, and anon harried by that bold raider from the North, the butcher bird, whose shambles,—a thorn or jagged branch impaling the half-consumed body of the victim of a successful forav,—he may occasionally find.

To one accustomed to notice birds, it seems, as before intimated, extraordinary that such exuberance of bird life should be at hand and, at the same time unsuspected. The writer's influence is, indeed, effectual to arouse passing interest. His insistant summons musters the family to witness an unusual assemblage of goldfinches clinging to sun-flower disks and feeding upon the seeds, singing the while as sweetly as canaries, with a song recalling theirs and scarcely less brilliant; to look upon a wonderful spectacle occasioned by swallows, as, in numbers impossible to count, they hawked amid a cloud of gnats that hovered low over an orchard, and where the wonder was that flight so swift and tortuous could be maintained without collision; to admire the cunning workmanship of the vireo's cup, cleverly suspended in the fork of a slender branch; to be surprised by the unex-

LOMARIA GIBBA BLECHNOIDES

pected activity of the wood pewee, whose customary drooping mein and drawling plaint, gives no hint of capability for the sudden dart and ensuing somersault in mid air that the approach of unsuspecting insects occasions; to count a thrush's greenish blue eggs in a nest nicely balanced on a raspberry cane; to look into the mouths of a brood of song sparrows, gaping as if for dentist's inspection, and nesting in the open lawn apparently wholly unprotected from enemies, and, in truth, eventually crushed out of existence by a horse's foot; to observe the ludicrously solemn aspect of a flicker, standing upon a chimney-pot and peering down, evidently pondering the adaptability of the contrivance to nesting requirements; to consider the neatness with which chippy coils his horse-hair mattress, to glow with martial ardor at the roll of a hairy woodpecker's drum; to speculate upon the stability of a bough weighted down by a flock of purple grackles; to secure a glimpse of the gorgeous livery of a passing red-headed woodpecker; to assist as spectators, now at an exhibition of acrobatism by a white-breasted nuthatch while exploring cracks and crannies in a rough-barked locust, and again at a display of agility in parallel-bar feats by chicadees on pendulous outermost twigs; to mark the characteristic habits of the little brown creeper starting at the base of a tree and winding spirally up to sweep down with a graceful undercurve to the foot of a near-by trunk, and so again and again. All these pleasant sights, and more, the family were invited to observe. Were they thereby stimulated to a desire to study birds? Not a bit of it. Next season found them as before with interest responsive to prodding, but with their stock of bird-lore, likewise, at the original low-water mark.

To a bird-lover such indifference is unaccountable. He regards birds as much a part of the garden as flowers. Indeed why is a bird not a sort of animated flower? It is highly colored and, in a sense, grows on tree or shrub. If it possess song and flight, are not these attributes additional attractions only? That birds are helpful to the tiller of the soil is doubtful. They unquestionably destroy countless injurious insects, but with calm impartiality, probably devour equal numbers of beneficent ones. Some birds likewise nibble at buds, peck at fruit and strip the bark from trees.

Opinion among so-called experts, regarding the function of birds in nature is, at present undergoing constant modification. Ornithologists have proved that hawks, owls and crows, at least, are not the immoderate chicken, bird or grain consumers they have borne the odium of being, but that their principal pabulum is moles and insects. Hence the claim is made that they deserve protection, not extermination.

Robins are too unblushing offenders to permit a successful denial of fruit-eating proclivities. But the plea is here urged that their enormous destruction of worms and insects more than offsets the mischief they do. And, to guard against their depredations, the use of nets or the employment of small boys with clappers has been suggested. What will provide against the small boy's raids remains to be discussed. The object, here, however, is not to investigate the agency of birds or consider whether it be good or evil. The only desire is to emphasize the fact, in so far as the limits of a short article allows, that birds, in greater or less numbers resort to every garden; and to persuade flower-lovers that a knowledge of birds, and a habit of intelligently observing them will add much to garden life, and that, too, not only in the heyday of summer, but also when other pleasurable garden-sights are few.

JOHN B. GRANT

JAPAN PERSIMMONS.

These are of no use about New York; it is perfectly useless to try to grow them in this latitude. I have tried now for five years, and while I have had some fruit none ever ripened, and usually the trees die down every winter.

New York. WM. H. S. WOOD.

At Dosoris we had them and they lived well enough and without dying down in winter, but they made very little growth, and while they set fruit every year and it swelled and colored a little, it never amounted to anything, not even becoming palatable. But we are on the wrong track altogether, the Japan persimmons (probably they are not natives of Japan at all, but of China) that we have in our American gardens are the same that are cultivated in the south of Japan; those that are found in northern Japan and which we might expect to be perfectly hardy in New York, are not in cultivation here at all. Observe what Professor C. S. Sargent says in his "Forest Flora of Japan": "In central and northern Japan the variety which produces large, orange-colored, ovate, thick-skinned fruit is the only one planted, and the cultivation of the red-fruited varieties with which we have become acquainted in this country is confined to the south. * * * *Diospyros Kaki*, or an allied species, is hardy in Peking, with a climate similar to that of New England, and fully as trying to plant life; it fruits in southern Yezo and decorates every garden in the elevated provinces of central Japan, where the winter climate is intensely cold. There appears, therefore, to be no reason why it should not flourish in New England, if plants of a northern race can be obtained; and, so far as climate is concerned, the tree, which, in the central mountain districts of Hondo, covers itself with fruit year after year, will certainly succeed in all our Alleghany region from Pennsylvania southward. * * The northern Kaki, the tree of Peking and the gardens of central Japan, has probably not yet been tried in this country."

A PRETTY BLUE FLOWER.—J. A. L., Akron, Ohio, sends us seeds of "a pretty blue flower. I have had it for several years in my bed of perennials, where it comes up every year from seed." It is *Asperula setosa*, a neat and pretty little annual, but one that isn't at all showy. It self-sows itself with the freedom of coreopsis or petunias.

GARDENING

WILLIAM FALCONER, Editor.

PUBLISHED THE 1ST AND 15TH OF EACH MONTH

— BY —

THE GARDENING COMPANY,

Monon Building, CHICAGO.

Subscription Price, $2.00 a Year—24 Numbers. Advertising rates on application.

Entered at Chicago postoffice as second-class matter.

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All communications relating to subscriptions, advertisements and other business matters should be addressed to The Gardening Company, Monon Building, Chicago, and all matters pertaining to the editorial department of the paper should be addressed to the Editor of GARDENING, Schenley Park, Pittsburg, Pa.

GARDENING is gotten up for its readers and in their interest, and it behooves you, one and all, to make it interesting. If it does not exactly suit your case, please write and tell us what you want. It is our desire to help you.

ASK ANY QUESTIONS you please about plants, flowers, fruits, vegetables or other practical gardening matters. We will take pleasure in answering them.

SEND US NOTES of your experience in gardening in any line; tell us of your successes that others may be enlightened and encouraged, and of your failures, perhaps we can help you.

SEND US PHOTOGRAPHS OR SKETCHES of you flowers, gardens, greenhouses, fruits, vegetables, or horticultural appliances that we may have them engraved for GARDENING.

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LOVELY BLUE COLUMBINES.—A. D. P., Schenectady, N. Y., writes: "I have just been reading the June 15 number of delightful GARDENING, and I notice this remark about *Aquilegia cœrulea*: 'How mortifying it is when we buy a lot of *cœrulea* seeds to find our plants are a mongrel lot of short spurred and long spurred, etc. Who can send us some seeds of the genuine cœrulea?' I have grown the cœrulea for years with unvarying success. My garden is not very large but lovely beyond words, and the enchanting delicate beauty of the cœrulea columbine is never absent from it. The tufts are about a foot and a half across with the profusion of rigid stems and immense blue and white flowers rising finely above them. I got the seed from R. and J. Farquhar of Boston."

"FIFTY VARIETIES OF COLUMBINES" are what one of our readers finds in a leading German catalogue, and among them *cœrulea*. Alas, we have, time and time again, waded in the mire of catalogue multitude, and in the field of experience become sceptical. It isn't what a host of loveliness is list like that inspires within us, but what an array of rubbish, even from that source get a packet of *cœrulea*, sow it, and grow it, and see what you get. Also send to Boulder, Colorado, as you likewise suggest for seed of *cœrulea* and grow it, from there you will probably get something you will esteem.

THE SWEET BRIARS. Out in the woods beyond Homestead, the other day, we came upon lots of the genuine fragrant briar bushes, and how delightful was their sweetness. Up on the crests of the steep clay bluffs they were too, evidently escapes from cultivation. Because of their thrift in that position, and their sweetness and old associations we quickly decided that Schenley Park was the proper place for them. No matter how small your garden may be find a place for a sweet briar bush in it, for its young shoots and leaves are always sweet, and a bunch of them when you cannot get blossoms will always fill your rooms with a delightful perfume.

THE WILD HYDRANGEA (*A. arborescens*).—This is the most showy shrub in all our woods just now—the middle of June—for it is everywhere, its large flat cymes of whitish blossoms being conspicuous on every hand. In a garden sense we generally associate the name hydrangea with a deep rich earth and much moisture, but in the woods we find this species growing from the chinks and fissures of steep, rocky cliffs and ravines, often in full sunny exposure, and often in the shade of trees, and always at home. So we have noted it as one of the indispensable shrubs for our steep rocky lands in Schenley Park. In its wild state, however, we note that while it thrives admirably in exposed places it must have had shade in its infant days, given either by neighboring bushes or near at hand trees.

THE GRASS IS TOO THICK.—By subsoil plowing heavy manuring and fining we prepared a good many acres of lawn this spring, but the land was heavy and clayey, and wet for so long in the early part of the season that we did not get the grass sown on it till May. As the last two summers were exceedingly dry we prepared for moderate drouth this summer, too, so sowed thick, but so far the weather has continued wet and the grass has grown immensely, it would seem that not a seed had missed growing, and now our lawn is too thick. When it is so thick the grass is weaker and more spindly and less able to withstand drouth than a thinner sole; and if we leave it a little long before cutting it it is apt to bleach or rot at the ground. Roll it occasionally, and cut it before it gets immoderately long, are about all we can do for it.

WILD FLOWERS FOR WINTER BLOOMING.—We have many beautiful wild flowers that are particularly adapted for window or greenhouse cultivation in winter, for instance our several cypripediums, trilliums and bloodroot, and now is the time to secure them. In a little while their tops will die down and the whereabouts of the plants become hidden, and then we can find the plants only with difficulty. Now, however, we can find them easily, and as soon as their leaves show signs of turning yellow, cut over the stems, and dig up the plants and bring them home and plant them in boxes, flats, or pots, and keep them cool and somewhat moist and shaded till late fall, then mulch them or put them in a cold frame to protect them from severe frost, let them rest well, and towards late winter bring them into warmer quarters to start them into early growth and bloom.

THE NEW MALTA PUMPKIN.—In our issue of December 15 last, page 105, Mr. W. H. S. Wood of New York, illustrated and described a new kind of pumpkin he discovered and secured seeds of in Malta, and he kindly gave these seeds, so long as the supply lasted, freely to our readers on condition that they would grow them and report results. Mr. Wood now writes to us: "It may interest you to know that of the seed of that new pumpkin I illustrated in your journal last winter and offered free to applicants I mailed over seven hundred packages to parties all over the continent. We shall hear from it next fall." He continues: "I have

"A LOT OF NEW THINGS, flowers and vegetables, growing and may find some valuable novelties. If I do I will let you know and shall scatter them free and freely when the time comes. A peculiar Lima bean has just been sent to me from North China."

PLANTS AND FLOWERS BELOVED BY THE ANCIENTS.—Calvalieri Giacomo Boni, a distinguished Roman architect and archæologist, says the *Gardeners' Magazine*, has found depicted in the frescoes at Pompeii and the Villa Livia, near Rome, the following plants: *Abies alba, Acacia vera, Acanthus mollis, Agrostemma githago, Aloe vulgaris, Althæa rosea, Amygdalus communis, A. persica, Arbutus unedo, Arundo Pliniana, Aster amellus, Buxus sempervirens, Castanea vesca, Chrysanthemum segetum, Citrus medica, Convolvulus arvensis, Cornus, Cupressus sempervirens, Ficus carica, Gladiolus segetum, Hedera helix, Iris florentina, I. Germanica, Laurus nobilis, Lilium candidum, Myrtus communis, Narcissus poeticus, N. pseudo-narcissus, Nerium Oleander, Olea Europæa, Punctratum, Papaver rhœas, P. somniferum, Phœnix dactylifera, Pinus halepensis, P. Pinea Platanus orientalis, Prunus cerasus, Punica granatum, Pyrus communis, P. cydonia, P. Malus, Quercus cerris, Q. Ilex, Q. Robur, rosa, Ruscus hypophyllum, Scolopendrium vulgare, Smilax aspersa* and *Vitis vinifera*.

THE NEW GARDENER.—We read this in the London *Garden*. "The following story comes to us from Nottinghamshire: A new gardener, who probably had the benefit of some railway experience, had just been placed in charge of a place, the owners leaving for a visit shortly afterwards. At one side of the flower garden was a rough slope, full of wild strawberries and violets. On the owners returning they found the new man had been busy, and among other changes the bank was smoothed up, with an inscription of one of Solomon's proverbs nicely set out in double daisies in large letters." And all that in England! With such glaring desecration at home to work upon, how can our English missionary friends find time or excuse to lash their Yankee brethren into good taste in decorative gardening? Now, John, you got ten talents, we got only one, but as we understand it the mote in that Nottingham man's eye is quite as big as the beam in Chicago's eye. Had that Nottingham man had only one-tenth of the gardening knowledge of the American he would

A CACTUS GARDEN

have printed a whole chapter from the Bible on that hillside, instead of simply a proverb, but thanks to his inexperience our credit is yet safe. Why, it isn't so many years ago that we read, or tried to read, rather, the "Rules and Regulations" of a public garden printed with plants in a big flower bed, and that too near the "Hub of the Universe" in the U. S. A.! We deciphered this much, "Dogs and baby carriages not admitted," but with pride and much readiness the designer himself rattled off the rest to us. John, raise your whip, both home and foreign missions need the lash, and use it.

GRADING LAND.

We are doing a good deal of grading at Schenley Park and may be "as we do it" may be suggestive to others. The land is uneven with many high steep banks, and the soil is very clayey, and often with much shale rock. To begin with, the surface soil is removed by scoops, carts or wagons to one side, so that when that piece of ground has been graded the good soil may be brought back upon it again. After removing the top soil we reduce the bumps into the holes, and fill up the depressions, carefully preserving the natural wave, roll or contour of the land, and insist upon easy, graceful lines, no matter how steep they have to be. It now happens that we sometimes strike a vein or layer of the most uncouth kind of bluish or whitish clay, through which tree roots could not penetrate and water would hardly permeate; to leave this anyway near the surface would be unwise, so we pick it and cart it away to some dump or deep hole that needs filling, and replace with more congenial subsoil. All being evened over we spread a good co ting of manure over the subsoil and plow it under, and run a subsoil plow in the same furrow. This finished we harrow the land, and spread another layer of manure over it, and now cart the surface soil back on to it again, and even it all over. This leaves the land in good tilth for anything. Many may urge that the manure should all be kept at the top or mixed in with the surface soil, and this would be good practice in the case of agricultural crops, and in the case of sandy or gravelly soil of any kind; but when it comes to clay ground that is being laid down permanently to trees or grass, we prefer manuring in the bottom for these reasons: Mixing the manure with the clay keeps the latter open and free to permeating roots, the subsoil so treated does not compact so hard as does that not so treated, it catches water more readily than firmer soil, and renders drouth less severe, and as it is all worked alike the drainage is much better and plant life surer than when only holes are dug for the trees and the surrounding ground is left hard.

If necessary we can manure from the surface also. Land so treated, with an annual top-dressing of hard wood ashes and some plain chemical fertilizer should grow both trees and grass to most anyone's satisfaction.

SAND PILES AS PLAY GROUND FOR CHILDREN.

Your Sunday-school suggestions, page 298, will find an echo in eve y reader's heart, and in your position, to which you are not called in vain, you will find many an opportunity to foster outdoor life for children and old. Have you got any sand heaps or gravel hills in your parks on the most frequented places, for the little ones to play in, with water near by to wet it, when they form their own imaginary structures? A plain stone coping around the sand to keep it in place, will make it nicer yet.

KEEP OFF THE GRASS.—Pardon my suggestion but the large stretches of perfect lawn with the public excluded from it, seems to me always as if it were unjust to have such rules, though reasonable care is certainly necessary. [There are no such "keep off the grass" rules in Schenley Park. Except in among the flower beds in front of the great conservatory, the public can walk where it pleases; and as gravel walks give easy access to all of the flower beds there is no excuse in this instance for walking on the sod there.—ED.]

W. SELIGER.

Conn.

The Fruit Garden.

CARE OF FRUIT TREES IN SUMMER.

An orchardist who loves his business, or who expects to draw an net income from it, must see his trees and examine them carefully as often as once a week. A good deal of mischief may occur in any orchard in less time than that, and if I were to base my advice solely on my own practice I should double this frequency. One who knows how and is accustomed to the work, would not necessarily stop longer at a tree than is required for a comprehensive glance on all sides. During the web-worm season, which embraces about a month after leafage, a daily observation is not too much to give and the observer should carry a wire brush on a pole with which to twist off the nests and destroy their contents. This work must be done early, or late, or both, as during the warmer portions of the day the worms are dispersed through the trees at their work of destruction.

Another job, which requires equally close attenion, is the inspection of the state of the bark as regards bark-lice, which can only be destroyed before the spring brood has ceased moving about, and has fastened itself to the bark.

Pruning is always in order in an orchard; and if rightly managed by "rubbing out," and the use of the long-handled pruner, but little use of the saw will be required. This pruner does away with the use of the saw upon all branches less than an inch in diameter; and when proper care is used there will be few to

exceed that size. The frequent washing of the bark with weak lye, using a swab, or brush, should never be neglected.

In my younger orchards I am growing gooseberries and currants between the trees in the rows. This makes such an orchard pay, almost from the start. In addition to this, we grow bush beans between the orchard rows. The proceeds of this crop about pays for all the manure required, not only for itself, but for the fruit trees; though I buy all I can get. I also carry on a dairy farm in connection with my orchards; breeding Jerseys and selling both young stock and cows as well as butter. This pays in itself; but would be carried on for the manure alone on the orchards. I began orcharding 30 years ago in this elevated section of Northern Vermont; but had only a moderate degree of success until the Russian apples pears, plums and cherries were imported, some ten years since. They are proving an entire success, and with these and our native seedlings, we hardly find occasion to envy our friends of southern New England and New York.

Newport, Vt. T. H. HOSKINS.

The Vegetable Garden.

VEGETABLES.

I grow a large assortment of vegetables and they must be of the finest quality.

The asparagus I have is Conover's Colossal, and I grow it in rows 5 feet apart. After removing the winter covering from the beds and they get dry on the surface, we rub them over with a wooden rake to break the surface crust. During the cutting season—till the end of June—every stem is cut,—the smaller ones are pulled out; this prevents the asparagus beetles finding an early feeding ground in this yard. After cutting over the old stems in the fall we clean the ground and fork in a heavy coating of rotted manure into it, and then cover the rows with a good thickness of seaweed.

In the way of bush beans we sow Mohawk for green snaps, and Henderson's bush Lima for shelled beans, in single rows, and keep on sowing in succession, the Mohawk till the end of August, and the dwarf Lima till the middle of July. Dreer's improved Lima is what I use in hills for poles.

I grew Jersey Wakefield for early cabbage, Winningstadt to succeed it; for winter use we restrict ourselves to the Drumhead Savoy.

The dark red Egyptian is my favorite beet, sow in rows, and make two successional sowings yet, one now and another last week of this month.

The Early Horn and half-long, stump-rooted carrots are what we sow, making two sowings a season of the latter.

In the way of cauliflower I plant snowball and Half Early Paris. Make first sowing about the end of January in flats in the greenhouse; prick them off into other flats, and grow on, gradually hardening them off, and plant them out as soon as the weather gets settled enough in spring. Sow again now outside for winter use.

I grow White Plume, Major Clark and Pink Plume celeries. Sow them in a cold frame in April, and prick them off, then plant them out in single rows in shallow trenches 5 feet apart. Bank up well and after sharp frost fill between the ridges with tree leaves, and cover all over with salt hay. Treated in this way I get good celery till the end of March.

As regards corn I grow Crosby's Early, Moore's Concord, Squantum in succession.

Tailby's Hybrid cucumber is the only one I grow outside.

The New York Purple egg plant is what I grow; the plants are three feet apart each way.

Kohl-Rabi, sow it in 2 feet apart rows, and thin out the young plants 18 inches from each other.

Of American flag leek we sow a short row, then lift and transplant the seedlings 6 to 8 inches apart in shallow trenches; set the plants deep and draw the earth to them as required. Cover with leaves and salt hay in winter to allow of the leeks being got at when wanted.

Boston Market is my early lettuce; we grow Trianon Cos and Hanson for summer. We transplant all our spring sown lettuce, but for summer lettuce we sow in rows, thinning the plants in the row and letting them head there.

Our best muskmelon is Emerald Gem, and it is a fine cropper. We grow it in hills 5 feet apart.

We sow Prizetaker onions in flats in February or hotbeds in March, and when properly hardened off and the ground is ready translant them into rows a foot apart and 5 or 6 inches asunder. As a seed onion I sow White Globe in 1 foot apart rows in April.

We have the Hollow Crown parsnip and sow it in rows 18 inches apart, and thin the plants 6 or 8 inches in the rows. Leave the bulk of them in the ground over winter, covering them with leaves or litter so that we may dig them when we want to.

Use Champion Moss Curled parsley; sow it early in spring in drills for summer use, and in summer for winter and spring. Cover securely in winter.

In the way of peas I have Early Dexter, Premium Gem, McLean's Advancer, Stratagem, Champion of England and Sander's Marrow in succession. Sow in single rows 5 feet apart with a row of bush beans, spinach, or lettuces between the rows.

Sweet Mountain is my pepper.

For radish we use Earliest Erfurt and French Breakfast, and sow them thinly, broadcast, and in weekly succession.

Viroflay spinach is what we have in summer, with some New Zealand spinach for hot, dry weather, and Round Thick-leaved for winter. The last should be covered.

[CONTINUED PAGE 318.]

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I don't use many squashes, but grow a little of Delicata and find it good both for summer and winter work.

Ignotum and Stone tomatoes suit me very well. I plant them in 4 foot apart rows, and the plants 3 feet asunder in the rows. To each plant I put a stout 6 foot high stake as for a dahlia, and to this tie up the tomato plants, one plant to each stick and only three shoots to each plant, all the other being cut away.

White Egg turnip, also the Purple top White Globe are the ones I grow; sow them in rows. G. B. WINSLADE.

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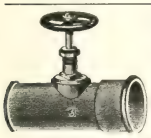

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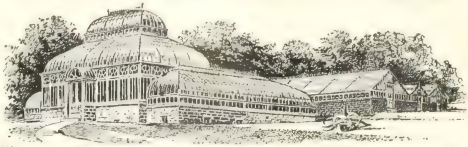

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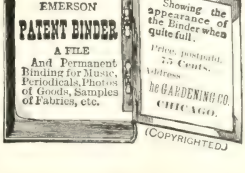

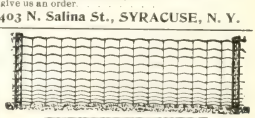

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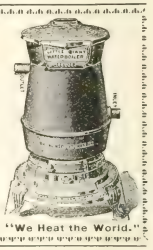

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GARDENING

Vol. IV. $2.00 A YEAR. 24 NUMBERS. CHICAGO, JULY 15, 1896. SINGLE COPY 10 CENTS. No. 93.

A HEDGE OF MME. PLANTIER ROSES.

Roses.

NOTES ON ROSES.

This hedge of Madame Plantier roses has been planted four years and it is now over six feet high and as much through; when it was in flower it was one of the finest sights we had in the garden. The bushes were completely hidden with flower, so abundantly did it bloom. It gets very little care. In early spring the long shoots are shortened in a little and that is the only pruning it gets aside from taking out the dead wood. This rose is seldom troubled by insects; the rose slugs don't trouble it much, and as a hedge rose it is one of the best we have, and it is easy to grow.

Climbing Jules Margottin is another good rose that does well here; it flowers very freely. We treat it as a bush rose and it does nicely in this way. Next spring we are to plant a hedge of it, to be a companion to Madame Plantier.

Rosa setigera (prairie rose) is now in nice flower; it is a good, strong growing species. We also teach this rose to grow in a bush form, and how it does flower! and coming in after the H. P. roses have done blooming, one can scarcely do without a few of it as it prolongs the season of roses so well.

Rosa Carolina is now in good flower; it is another fine single rose and also a native; after its blooms are past a nice crop of crimson heps appear.

Rosa rubrifolia (red leaved rose) is a beautiful species with deep purple foliage and red flowers, followed by scarlet fruits which hang on the plants nearly all winter.

Gloire de Dijon proves quite hardy here trained on the south side of the little cottage and it grows fine and sends up shoots twelve feet long in a season; what a lovely rose it is!

Crimson Rambler does well with us and winters nicely; one of the oddest things about this rose is that after the bloom partly fades buds form in the cent r of the flower and open nicely. I have never before seen this spoken of in any garden paper. I enclose a few flowers to show you how it is, and this occurs in mostly all of the blooms.

Baltimore Belle, Queen of the Prairies, and a number of the other climbing sorts all do well here and flower beautifully. The Dawson rose grows and blooms finely and so does *Wichuraiana*. We grow a lot of these half-climbing roses in bush form, planting them close together and letting them run all through one another, forming a tangle, and in this way they do well, and such a lot of flower you can get in this way!

The rugosa roses also do finely here, and give a lot of flowers and plenty of berries; for growing in a mass as we grow it here it shows off in fine style.

Of the H. P. roses we grow about sixty-

five varieties; last spring we planted five hundred of them of all the newest sorts and the best old ones. Mrs. John Laing stands at the top as a pink rose, growing and blooming freely. Captain Christy is the best flesh-colored one we have and it is a very free flowerer.

For these new roses we prepared special beds. Last fall we dug out the sandy soil (2 feet deep) and filled in with good soil; we carted a big heap together and mixed it up with good old cow manure, one load of manure to three of soil, we also added several bags of wood ashes and a lot of crushed bones. The pile was turned over twice, then carted to the beds, 23 loads of it and this is what we are now growing the roses in.

Some may think that this is a lot of work, but it was the only thing that could be done, as our sandy soil of itself won't grow very good H. P. roses. We have just finished making another garden which is intended for roses to be planted next spring, and which will hold about 1,000 more plants. We also planted last spring 150 H. T. roses in a prepared bed; we will cover these with a frame next winter, as they won't prove hardy. The tea roses will be treated in the same way; these do nicely here and gives lots of bloom.

In the polyantha class we graw a number, and they all do well and bloom freely. Clothilde Soupert is one of the best. These roses bloom all summer long; the flowers are not very large, but as they come in clusters that makes up for it.

Mahwah, N. J. DAVID FRASER.

[Our illustration of the hedge row of Madame Plantier rose is engraved from a photograph Mrs. John Mayer had taken for GARDENING last ('95) summer. This season, now that the rose is older, bigger and bushier we are informed that it was fuller in body and much more floriferous than it was a year ago. We look upon Madame Plantier as the most indispensable of all of our white roses, and it is very hardy, and makes both a fine dwarf border rose or hedge; but let no one get possessed of an idea that it will bloom after midsummer, for it won't. —ED.]

THE ROSES GET WINTER-KILLED.

My place borders Long Island Sound, but I cannot get my roses to keep their bearing wood over winter no matter what with or how I protect them. I have tied straw around them, and mulched them with leaves and manure, and yet I don't get good blooms from them. I thought of making beds the width of ordinary frames, and putting frames and sashes over them in winter, keeping them there till into April when the good weather set in, but not putting them on till winter weather came on. Magna Charta, Baroness Rothschild, Mabel Morrison, General Jacqueminot, and the like, are the varieties I am desirous of growing.

J. R. M.

Roses did well with us on Long Island, and we got good wood and fine blossoms. Our first care was new ground, that is to plant roses in ground not before occupied by them, be it sandy or loamy; the land was unfastened deep and manured well. Shelter was a prime consideration. Rose bushes open to the full sweep of the piercing, raw, northwest winds in winter are sure to suffer, especially towards spring. In new ground and a sheltered place we had very little trouble with the wood getting killed back in winter, and if it did get killed it was only part way down and not so far back as we would cut it in April when we pruned it; indeed if the lower eyes are plump and sound, cutting back the bushes is a good thing all round. We let the bushes stand erect in the rows, then say about Dec. 1, mulched the beds all over with several inches deep of strawy manure. In the case of tea, Bourbon and other doubtfully hardy roses, we laid them down, pegging them in place, on their sides and lengthwise in the rows in November, and about the first of December covered them all over with five or six inches deep of loam much as one would fig trees, or raspberry or grapevine canes. This kept them well. Hybrid perpetual roses buried with loam in the same way would also live through the winter unhurt. Carefully observe not to cover up your plants too soon, for it isn't the cold before Christmas that injures them, but the severe weather and sudden changes after the new year, especially after the middle of February. Don't stay too long in spring before uncovering, but be very careful not to uncover too soon; better uncover a little one week, and a little more next week than do it all at once.

ROSES AT SALT LAKE CITY, UTAH.

As I seldom see any items from this section, I thought I would furnish a few notes. [Very glad to hear from you.—ED.] First, then, let me express my appreciation of GARDENING. I have taken at some time or other nearly all of the American publications of a similar nature, but none has pleased me as well as GARDENING. It is so free from sectionalism, the matter being of such a general nature that it interests all classes and particularly amateurs—the very ones who need its assistance.

Well, to come down to the matter on my mind, roses. Although they have been and are still very plentiful, and some have been very fine, yet this is a bad year for them. We had cold, very wet weather so late, and then it got very hot so suddenly that it was very trying. For instance, Earl of Dufferin, which was superb a year ago, is almost a failure this spring. The color is dead, and the blooms refuse to open. To have first-class blooms from this rose, the buds should be thinned out considerably.

Madame Plantier, always good, has been very fine and prolific. General "Jack," while the color has been hurt some, was very free and generally very fine. Paul Neyron and Anne de Diesbach are both splendid and always have been with me. Pierre Notting is not satisfactory in spring, but sometimes has a few very fine blooms in fall. Fisher Holmes has been splendid, also Jean Liabaud and Marshall P. Wilder, but I think Lady Helen Stewart and Marie Baumann have been the finest crimsons I have had this spring, both being exceptionally free and bright. Baroness Rothschild is always fine, one bloom with attendant foliage being a charming bouquet, and Merveille de Lyon is very similar, but nearly white. Marguerite de St. Amand is always beautiful, so is Mme. Gabriel Luizet, and Mrs. Jno. Laing is in the very front rank. But La France and Mme. Caroline Testout are without peers as pink roses in this climate, and Kaiserin Augusta Victoria as a white (or lemon). A few buds of La France and Kaiserin Augusta Victoria make the most beautiful bouquet imaginable. Augusta Victoria is perfectly hardy here. In fact most tea roses are hardy, dying down to the roots, but shooting up with vigor in the spring.

What a charming bud is that of Eugenie Verdier. Mme. Georges Bruant is continuously in bloom. Crimson Rambler seems to be a failure here, leaves turn yellow, buds die before they open. My neighbors make the same complaint. I have not yet seen it in bloom, although I have purchased a number of plants. Meteor is fine at some seasons but not always. There are others I might mention, but these are the best. ALLDRIDGE.

MOSS ROSES.

I append a list of a dozen varieties which I consider worth cultivating. I have placed them in their order of merit, so that if only one can be grown it should be the first named, and so on.

COMMON PINK.—Buds are beautifully mossed.

BLANCHE MOREAU.—Fine paper white, the moss-like growth being of a peculiar dark green color, forming a beautiful contrast to the white flowers.

LITTLE GEM has flowers of a deep pink color and very small; the tiny buds are freely produced and are very mossy. It is a splendid variety for pot culture.

CRESTED.—A clear rose color, the flowers being enveloped in a peculiar parsley-like growth of a very striking appearance.

WHITE BATH.—An old favorite and in some respects the best white, but not quite so vigorous as Blanche Moreau.

CELINA.—Rich crimson, well mossed and produced in panicles of eight or nine blooms each.

COMTESSE DE MURINAIS.—White, shaded pink, very showy and free, each shoot crowned with panicles of blooms eight or nine in number, well thrown out from the stem.

SALET.—Blush-pink, with a deep rose center, large and free.

MME. WM. PAUL.—Bright rose, free blooming, and the most perpetual of any.

CRIMSON GLOBE.—Quite a new departure in moss roses, the flower being of almost exhibition size, of a rich crimson color, and buds well mossed.

LANEL.—Deep rose, almost crimson, and buds fairly well mossed.

GLOIRE DES MOUSSEUSES.—Beautiful blush-pink; large and full.

MME. EDOUARD ORY.—Rosy carmine, large and well mossed.—*The Garden.*

Trees and Shrubs.

LABURNUMS. WHY DON'T THEY BLOOM?

C. M., Chestnut Hill, Philadelphia, writes: "We have a pair of laburnum trees which do not bloom, though one of them had a very few blooms on it a year or two ago, proving that it is not the sex of the tree which prevents. Can you suggest the cause or a remedy?"

Ans. Sex in plants has very little to do with their blooming properties, for instance a male holly tree, although it never bears a berry, will be covered with flowers, in fact more so than the female one. Or take the ailantus tree; the male one is the ill-smelling one, and we all know how profusely it blooms, just as freely as the seed bearing or female one. Take pine or yew trees that have male and female flowers on the same plant, the male flowers are always the most numerous, and the same is the case in the lesser plants in which the male and female flowers are distinct, there are always more male than female blossoms, for instance see cucumbers or begonias. But the laburnum doesn't belong to the above

MAGNOLIA CONSPICUA

sets of plants, there are neither distinct male nor female plants of it, nor male or female flowers in the same plants, each flower is perfect in itself. So that has nothing to do with the non-flowering of your laburnums, and what has we, not knowing the exact condition of the plants and their surroundings, cannot tell, but we will suggest a few salient points.

The laburnum is perfectly hardy but it should have deep moist ground to grow in and shelter from sweeping winds and scorching sunshine, in your locality an eastern or northern slope or aspect provided it is sheltered from sweeping winds should suit it well. Don't let it be shaded overhead or in front, don't disturb its its roots, that is don't dig about or over them. If over-luxuriance is the matter with them, dig a deep narrow trench around them, a few feet away from the bole, to shorten in the roots and set the trees to forming flower buds rather than wood buds, and do it now. Don't prune them in winter and the less pruning you do to them the better; but if they must have some pruning to keep them in shape do it now. Although the laburnum likes a cool moistish soil, like the mountain ash, the soil should be well drained such as we get on a slope more than in level bottom land.

OAK TREES AND SCALE.

J. H. S., St. Joseph, Mo., writes: "I send you by express some leaves from my oak trees. The leaves and stems are constantly falling off and it seems to be due to the small round foreign substances which you will find adhering both to the leaves and twigs. I had the same trouble last year but to a less extent, and I am afraid serious consequences will result unless we can get an efficient remedy."

The twigs sent are very badly infested with scale insects. If the trees are large it will be almost impossible to rid them of the vermin. Kerosene emulsion is about as good and safe an insecticide to use as any. In the early spring before the wood buds burst spray with a strong emulsion; when the buds are bursting spray again using a weaker emulsion, and again about a fortnight later. This is to reach the young scales when they emerge from under the old parent shell; they are easier killed then than at any other time. Kerosene emulsion, ordinary strength, applied now and once or twice between now and fall should destroy many of the scales. In the winter season the rough bark of the trees may be painted with a solution of kerosene, say one-half kerosene and one-half skimmed milk, and the little twigs with one-fourth kerosene and three-fourths milk, but this strength would ruin bursting buds or foliage, so must not be used in summer. But in winter the old scale-shell forms an almost impervious barrier to the kerosene, so that the main dependence lies in killing the scales as they hatch and begin to spread out from the mother shells.

KEROSENE EMULSION.—As regards how to make it we quote as follows from a W. Va., Experiment Station bulletin (43) just to hand:

"Soft soap, 1 quart, or hard soap, ¼ pound, 2 quarts hot water; 1 pint of kerosene. Stir until thoroughly mixed; then dilute with water, using one part of the emulsion to three or four of the water. The most satisfactory way of making an emulsion is to use a force pump for mixing, pumping the water back into the receptacle several times. Another method is to use hard soap, ½ pound; boiling water, 1 gallon; kerosene, 2 gallons. Churn or pump the ingredients thoroughly for fifteen minutes. Dilute ten times when using.

"KEROSENE AND MILK EMULSION.—Sour milk, 1 gallon; kerosene oil, 2 gallons; warm to blood heat and mix thoroughly. Dilute ten times with water and use as a dip or spray."

Skimmed milk is almost as good as soar milk and is what we generally use. Kerosene mixes readily with milk but not with water, hence why we use milk.

A LYE WASH is also an excellent thing for killing scale insects on trees, especially on the bark of stems and branches; as regards how to make it we quote from the same bulletin: "One pound concentrated lye or potash 1¼ pounds to three gallons of water. This may be applied to branches of trees with a brush as a remedy for bark lice."

THE YULAN MAGNOLIA.

(*Magnolia conspicua.*)

Perhaps among hardy Japanese and Chinese magnolias this is the widest known and most prized of all, both in this country and Europe. Over forty years ago there stood on the grounds of the late A. J. Downing, Newburgh, N. Y., a magnificent specimen of this tree, perhaps it may be there yet. So attractive was this grand tree when in bloom that travellers on the Hudson were enchanted by its beauty, many of whom could not understand what tree it could be. It is a very early and profuse bloomer, of the purest white, with a strong peculiar fragrance. The specimen herewith shown is growing in my nursery here and is 18 feet high.

JOHN SAUL.

Washington, D. C.

A very pretty tree of the Yulan magnolia as grown at Dosoris was shown in GARDENING, May 15, '94, page 289, and a pretty full reference is given there to garden magnolias in general. In that article we credited several species to Japan, for instance *Magnolia obovata*, *M. Watsoni*, *M. parviflora*, and *M. stellata*, but now comes Prof. Sargent in his "Forest Flora of Japan" and tells us that these are found in Japan only as garden plants, and that they properly belong to China or Corea. In Japan there are only three magnolias that are indisputably native of that country, they are *Magnolia hypoleuca*, a timber tree from the "damp rich forests which cover the low rolling hills of Yezo." There are some fine specimens of it in cultivation in this country, and probably the finest is that of Dosoris. *Magnolia Kobus*, often known in gardens as *M. Thurberi* "is exceedingly common in the forests that clothe the hills in the neighborhood of Sapparo." Although a vigorous and handsome tree in our gardens it doesn't take a front rank among "flowering" magnolias, for its blossoms are smallish and not very numerously produced. The third species is *Magnolia salicifolia*." On Mount Hakkoda it is a common plant

about 2,000 feet to 3,000 feet above sea level. It is not in cultivation so far as we know, except a few little seedlings at the Arnold Arboretum."

But don't let these rare plants bother you, nor the country in which they are indigenous, if you want a beautiful magnolia and one that will live and do well in your garden try the Yulan magnolia, the subject of our illustration. You can buy it from most any prominent nurseryman. In rigorous localities where it isn't hardy get *Magnolia hypoleuca* and try it.

A HEDGE PLANT.

Within the past few years our people have built a church and a parsonage on the same plot of ground. It is at the edge of a village and extends 200x250 feet along the public road. We need a fence along the road. There are not many cattle to be kept out, but some pass every day during the summer. We have been thinking of a hedge. We would not care to have anything of rampant growth. As there is a row of Norway spruce for a windbreak a short space inside the fence evergreens would hardly suit. Our soil is sand and clay mixed. It retains water during the winter and spring and gets quite hard during the summer. We have been thinking of the barberry and Japan quince (*Cydonia Japonica*) either alone or mingled.

Do you think they will give satisfaction? If not what would you suggest? Would like to have suggestions as to the best way of treating the soil and planting to get best results. H. K. S.

Middle Lancaster, Pa.

The Japan quince will make a very beautiful hedge but it will not be of the upright fence-like order, it will be about as broad as high. The barberry will also make a nice hedge but it will have an air of commonness you may not like. In either case you should run a couple of strands of wire along the row and let the hedge plants grow up about them. The common privet will make as pretty a hedge plant as any and it is hardier than the Californian one. By keeping it cut well down when it is young it can be kept very stocky and within bounds to suit most any purpose. All of these three make reliable ornamental hedge plants, and there are many others as *Spiræa Thunbergii*, althæas, Madame Plantier roses, honeysuckles trained on a low fence that could be made to answer and look very beautiful, much depending upon the operator, and the situation. Sand and clay mixed should be a soil good enough for most any shrub providing it is drained, deeply worked and intermixed with manure to keep it open as well as fertilize it. If it retains water during the winter and spring it should be drained, else sappy growth, immatured wood, and winter-killing are likely to be the result. If it gets hard in summer you must keep it well unfastened with a hoe, or if you prefer it, mulch it.

MAGNOLIA SPECIOSA IS HARDY AT CHICAGO.—In the spring of 1895 Ellwanger & Barry shipped to a neighbor here in this town a small *Magnolia speciosa*, which passed safely through the severe winter following, as well as last winter, in each instance unprotected in any manner, and this spring rewarded the owner with a few blooms. The situation where planted is somewhat sheltered. I was much surprised at this. [*Magnolia speciosa* is one of the same set of hybrids to which *Soulangeana* belongs, the original parents being *M. conspicua* and *M. obovata*. *Alexandrina* and *Norbertii* also belong to the same set. We are not at all surprised that *speciosa* has proven hardy at Chicago, neither will we be astonished if you yet find that, given favorable environment, the other sorts named may also survive your rigorous and changeable climate.—ED.] W. C. E.

The Flower Garden.

PLANTS IN BLOOM JULY 8.

The Kœmpferi irises are now mostly past, but while they lasted they were very fine; they have very large flowers and a wonderful variety of color, and they are of easy growth and soon form large clumps.

Spiræa palmata with its large heads of crimson flowers is very fine; it is one of the good things that every one should have; it grows nicely with *S. Aruncus*, which has creamy white flowers; they grow about four feet high.

Alstromeria aurantiaca (Peruvian lily) with its clusters of orange yellow flowers is very nice; it grows about two feet high and a clump of it in the border is quite showy.

Milla biflora, a beautiful small bulbous plant of easy growth, if treated the same as we do with gladiolus, does nicely; the flowers are pure white, star shaped, on long slender stems. *Calochortus Plummeræ* is another bulbous plant now in flower; it was wintered over in the frame with the Oncocyclus irises and has done very well.

We have had a nice show of early lilies. *L. Brownii* was very fine. It is a lovely lily and one that every one should have; it is easy to grow and its flowers are large, about six inches long; inside of the flower is pure white, outside brownish. *L. excelsum* grew about four feet high and had beautiful buff colored blossoms; it is nearly past. *L. auratum* and some of its varieties are now in nice flower; it makes a good show in the garden, its flowers are so large and they are very sweet. *L. candidum* has been making a great show; a border of it here was a fine sight, but it is now getting past. *L. Canadense* and some of its varieties are in good flower; although there is any amount of it in the fields here a few in the garden are not amiss. *L. croceum*, although a common lily is yet one of the best; its large orange crimson flowers dotted with black makes it one of the most showy lilies we have in the garden. *L. Hansoni* and *L. pardalinum* were both good but are now past.

The platycodons, now in good flower are very showy border plants and easily raised from seed. *P. grandiflorum*, both blue and white sorts, grows about two feet high and has large bell-shaped flowers. *P. Mariesi* grows only about ten inches high, but has flowers as large as those of *grandiflorum*. Hollyhocks, single and double are now at their best, and would make a great show in the garden if the disease of the leaves would only keep away. *Hemerocallis Thunbergii* (yellow day lily) is in nice bloom and makes a great show. *H. fulva*, the tawny day lily, is also in good flower; it has naturalized itself along the sides of the roads. *Funkia lanciflolia* is making a show of large spikes of lavender flowers, and *F. ovata* is also in good flower; it has large spikes of lilac colored blossoms. *Yucca filamentosa* is making a good display; its large panicles of creamy white flowers are very conspicuous in the garden.

Monarda didyma is still in nice flower, its showy heads of scarlet flowers being quite attractive. *Coronilla varia* is in full bloom; it is a good plant to cover any out of the way place, as it grows very fast and spreads over the ground; it has pea-shaped flowers. *Achillea Ptarmica* is full of dense heads of small double white flowers; they are nice for cutting and last a long time. The phloxes are now blooming nicely but it will be a week or two before they are at their best.

An arch of *Clematis Jackmanni* is in fine glory, its large purple flowers are very showy. *Clematis Flammula* is beginning to bloom; it has large heads of pure white, fleecy, fragrant flowers, and it is very easy to grow. Hall's Japan honeysuckle is in fine flower; it is one of the best vines we have for covering arbors, we have a lot of arches covered with it and it looks very well.

Mahwah, N. J. DAVID FRASER.

THE WILD GARDEN.

The spring wild garden with its gay hosts of countless flowers bedecking the fresh and verdant turf presents only one aspect of this delightful phase of gardening. As the season advances bringing in its train new types and forms of beauty some of these likewise may be happily wedded to an otherwise unadorned spot and receive added charms from their environment, if the union is complete; in short, if the plants selected are adapted to the spot. Aye, and how delightfully varied some gardens might be if only the vegetation was selected by reason of its adaptation to the spot, but we are all so conventional that we grade, drain and otherwise set up a uniformity of conditions which imposes limitations in the choice of plants. I will presuppose a moist spot existing in some corner of the garden grounds, perhaps a small pond, a tiny stream or even but a damp ditch. The general impulse is to drain it, but let us take it as it is; develop its beauty along the lines made possible solely by a superabundance of water and see what flowers we may plant and enjoy there that need no more care nor cultivation than falls to the lot of the wood lily or moccasin flower in the moist leafy hollows of our woods.

There is one family adapted to such a moist spot that we can rarely do justice to in our hot exposed flower borders. I allude to the *Trollius* or globe flowers; giant double buttercups as handsome as any flower of their time, yet very little grown in gardens. There are several kinds having minor variations of form and color, but for this purpose it is enough to take the European and Asiatic species and plant a bold colony of each right into the coarse grass that usually grows along the stream or ditch bank. Some years ago after vainly trying for a couple of seasons to keep clean the moist banks of a ditch that intersected a shrubbery we abandoned it to nature and began trying to adapt the plants to it. The globe flowers were first planted and before long they simply asserted their vigor by elbowing out enough grass to make room for their own ample tufts of leafage, whilst for the past six years they have given a two months' picture of golden beauty that is a joy and a revelation to all who behold it. These great double buttercups in nature fringe the cool mountain streams, yet when brought into gardens they are usually condemned to languish in ths sunny borders that alone are thought to be adapted to the growth of flowers. Likewise suitable are the graceful meadow rues (*Thalictrum*)

HYBRID DELPHINIUMS

with leafage as elegant as the maidenhair fern and tall branching heads of feathery bloom.

The spiræa family, too, offers several noble species that in such a spot find conditions conducive to their strongest growth and greatest floral beauty. Where the globe flowers above mentioned are growing there is also a long-spreading colony of the double-flowered meadow sweet (*Spiræa Ulmaria fl. pl.*) that fills the ditch with a drift of white blossoms from midsummer onwards for several weeks. Add to this the great *Spiræa Aruncus* and the giant Asiatic meadow sweet (*S. gigantea*) whose great snowy plumes of blossoms are poised on leafy stems 6 feet or more in height, when the plant is grown near water and you have a trio of the finest of this family, all white, however. Equally essential and just as much at home in the situation is the queen of the prairies (*Spiræa venusta*), a lovely plant with handsome plumes of rosy flowers, also *S. palmata*, the latter usually coddled because thought tender, but as hardy as the rest and as well able to take care of itself. Last, but very far from least in this present selection, are several members of the great iris family, than which no more important group exists of flowers for the outdoor garden. It would take all the available space of a number of GARDENING to do justice to the iris group, even then one could only marshal and pass them in brief review from the lovely sorts that set their cushions of leaf and flower on the ground up to the stately species that reach the height of man. *Iris Germanica* is easily naturalized in a moist spot, but the species that has given me the greatest satisfaction and the most graceful and delightful effects is *Iris Sibirica*. A quantity of this was planted beside a ditch among very coarse grass, and never after tended, yet every year there comes up hundreds of tall, slender, erect stems bearing numbers of its rich blue flowers. Only when flowering is the presence of this iris visible, as its ample tufts of narrow grassy leaves are when flowerless hardly distinguishable from the grass that grows on the spot. That gorgeous iris from Japan *I. Kæmpferi* now attracting attention is pre-eminently adapted to the conditions we have under notice; in fact ten times happier there than when gasping for water in the open sunny border. *Iris ochroleuca* is one of the giants of its tribe, loving to have its roots in perpetual moisture, and the finest group of it I know is in a wood among sedges and other vegetation indicative of a water-logged soil.

Madison, N. J. A. HERRINGTON.

DELPHINIUMS.

The illustration here given represents a bed of garden hybrid larkspurs (delphiniums) when in their prime early in June of the present year. The flower spikes of some are over a foot long and reach a height of 6 feet. This is one of the most showy and easily grown perennials we have, embracing many colors, ranging from a light to a rich metallic blue. Some of the English double forms are most exquisitely colored, presenting indescribable dainty hues of porcelain blue and indistinct shell pink, forming spikes of flowers as compact as the spike of the cat-tail.

Being tall growers and subject to the havoc of wind and rain they require secure staking.

These stools are nearly three feet apart from centre to centre, each plant having four cane stalks about three feet high placed in the form of a square around them. Strong string is then run around them from stake to stake and occasionally a string is run through the plant to an opposite stake in order to divide the flower spikes more evenly. One good stem is left outside the string at each stake and then tied to it—thus hiding nearly all traces of their support. It is now a month since this picture was taken, yet they still present a favorable appearance. When through blooming they will be cut to within a few inches of the ground, and while looking a little ragged for a week or so they will send up new shoots and again bloom in the fall, but not as profusely. Unless well watered they are apt to become somewhat naked at the base, and it is best to provide some pleasing border. In this case the Allegheny plumy bleeding heart, *Dicentra eximia* is used, its fern-like foliage being fresh and clean the whole season through. Handsome and attractive as these larkspurs are one must not be without the more delicate appearing *Delphinium Chinense* in its single forms. The clearness in tone of its colors are without a parallel, especially the deep blue form. Both of this class of larkspurs are perfectly hardy, but repay a good winter mulching of manure. W. C. EGAN.

Illinois.

FLOWER GARDEN NOTES.

GUILLAUD'S CARNATIONS. I have not seen these catalogued except by a Boston firm (Schlegel & Fottler). While they do not bloom the first year from seed, they are perfectly hardy with a slight covering of leaves. The plant itself and the calyx of the flower are exactly like carnations, but I have not found any double flowers among mine. The handsome colors and delicious perfume make them a desirable acquisition to the garden, and they are far more beautiful, in my estimation, than the Marguerite carnations, with which personally I have never had any striking success.

PINK, HER MAJESTY. While it is true that the flowers are large and full, they are worthless to me on account of splitting the calyx. I have several large clumps which bloomed profusely, but I do not think there was one perfect flower among them. Is this usual? [Alas, it has been our experience too.—ED]

PINK NEW MOUND. Although the flowers are small and single, yet I consider it much superior to the above.

NASTURTIUMS, MME. GUNTHER'S HYBRID. I bought several packets of seed from a very reliable house, and ought to have got the genuine article. If I have, I cannot see that they are any better than many of the finer sorts of the ordinary climbing nasturtiums. [Again this has been our experience too, in fact, after having the plants come into bloom we could not help exclaiming "What on earth is all the fuss about!"—ED.]

CITRUS TRIFOLIATA. Ought these to blossom when they are 5 years old, about 3 feet high, planted in light rich soil, getting about three or four hours sun a day? Only the tip ends hurt during the winter. [We have seen plants 3 or 4 feet high in the neighborhood of New York bloom nicely, but how old they were we couldn't tell. Plants we had at Dosoris 3 feet high and bushy, and much older than five years didn't blossom. Although it can be had to live over winter about New York, it is not reliably hardy there, no matter what may be written to the contrary.—Ed.]

CIMICIFUGA RACEMOSA. I know of few plants which would make a more effective art study than this. The plant itself is about 18 inches high, of graceful appearance and pretty foliage. The flower stem is from 2 to 3 feet taller, with two clusters of leaves at equal distances up. At the end of the stem appears a cluster of serpentine racemes of very fine white flowers, hanging in all directions. The fragrance is agreeable to some, to others not. The root was planted last April, and it has grown well in a moist spot, with only a few hours of the morning sun. I have yet to discover any insect enemies it may have. [It is one of the most effective and easily grown of all our native plants, in bloom now, long lived, and easily transplanted. But very few people have it in their gardens. A few miles out of Long Island City, in a wet wood, on the left hand side of the railroad going east, you will find this plant in great abundance. It also grows in our dry clayey, hilly woods near Pittsburg, and we have a good deal of it in Schenley Park, both wild and in a cultivated state. It grows both in damp and dry places, but in dry exposed situations it needs a little shade; in ordinarily damp ground it

thrives perfectly in open sunshine.—Ed.]

INULA ENSIFOLIA is now in bloom. It is like a single daisy, with yellow center and lavender ray florets. I suppose the beauty of the plant must be when it has formed large clumps and is covered with flowers. Looking at my year old plants from seed, I cannot see anything to justify the exaggerated encomiums I have read in some catalogues.

PENTSTEMON BARBATUS, TORREYI and P. SPECIOSUS. With their long upright spikes of brilliant vermilion pendent flowers, these make a fine show. But I can see no difference between the two, except that speciosus is a little larger. Has the sin of substitution been practised upon me at the nursery? They are not troubled by insects. [*Pentstmon speciosus* is a very beautiful blue flowered plant and has nothing to do with *barbatus* or *Torreyi*.—ED.]

BOCCONIA CORDATA. What a grand display large clumps of this are now making with their tall panicles of feathery white flowers. But what a fearful spreader it is from the roots. I have never found an insect of any kind on it.

[A fine bold plant and very hardy, but a pestiferous one so far as spreading at the root is concerned, in fact while excellent to naturalize in wild places where one would use the tawny day lily it is a subject we should disadvise our readers introducing into their flower borders. Seeds are slow to start, but with care and patience we can get up a stock of plants in this way; from division or pieces of the roots is the usual mode of propagation.—Ed.] L. C. L. JORDAN.

Bergen Point, N. J., July 6, 1896.

RAISING HARDY PERENNIALS FROM SEED.

The raising of hardy perennials and biennials from seed is quite an interesting work for amateurs and one that all lovers of flowers should indulge in. The most of these plants are of easy culture and as no greenhouse is needed the amateur with small means can do it just as good as the gardener with a lot of glass houses. We raise a great many of them here and find it very interesting work. Some may think that it is a long time to wait to see these plants bloom, but if a few are sown every year you will always have something new to look at from early spring till late in fall. It is also a cheap way to fill your garden with choice plants that will last for years.

The way I raise them is quite simple and still successful. I use small boxes twelve inches by ten, and two inches deep. In the bottom of the boxes I put soil that has been put through a half inch sieve, say three parts loam to one of old rotted manure; put an inch and half of this in bottom of box, then fine prepared soil that has been put through a quarter inch sieve on top, filling the box level, then press it down firm with a small piece of board and sow the seeds. If the seeds are very small I use a small sieve made of fly netting to put the soil through to cover the seeds. Have the soil you cover with as open as possible, for instance soil with leaf mould and old mushroom manure freely mixed I find the best, but any open soil will do. After the seeds are sown and lightly covered press them down firmly with a board and the work is done. I then put the boxes in a shady frame and keep it close till the little seedlings appear, then remove them to more light and let them have plenty of air. When they are large enough I prick them into other boxes and put them in a shady part of the garden, but not under the shade of trees, as there they will draw too much, they can then be handled at any time.

Some gardeners sow the seed right in the frame, I have tried both ways and find boxes the best to sow in, as the different varieties of seeds do not all come up at once and you can remove them from the close frame to more airy quarters as soon as the seeds come up, whereas if sown in a frame you would have to give them all the same treatment. If boxes are not handy at pricking-off time, a prepared bed will do as well, making it in some half shady spot in the garden, and shading the plants for a few days when the sun is on them. About the 15th of September plant them in the garden where they are to bloom, or if the garden is full of summer flowering plants put them in beds in the vegetable garden to be planted out in early spring and give them a light covering of strawy manure to keep sudden changes of the weather away from them.

I will now give the name of some varieties that will give you a good show of flowers from early spring till late in the fall, naming them as they flower through the season.

Alyssum saxatile, this grows about one foot high and has a mass of bright golden yellow flowers.

Dianthus barbatus (sweet william), a common flower but one of our best early summer flowering plants.

Delphiniums, both double and single, these grow three to five feet high and the colors run through all shades of blue to white.

Aquilegia (columbine), these grow one to four feet high and the colors run from deep blue to white.

Salvia argentea, this has large silvery leaves and handsome spikes of pure white flowers three feet high.

Verbascum Phlomoides grows five feet high and has large spikes of yellow flowers. It is a biennial.

Oriental poppies, these grows about three feet high and have large scarlet flowers.

Campanula persicæfolia, this grows about three feet high and has large bell shaped flowers, white and blue. *Campanula Trachelium*, about 4 feet high with large spikes of purple flowers. *Campanula rotundifolia*, one foot high, clusters of blue flowers, Canterbury-bells, grow about three feet high, flowers bell shaped; all colors from deep blue to pure white, biennial.

Gypsophila paniculata, two feet high, has graceful small white flowers and is fine for cutting.

Digitalis, fox gloves, four feet high, all colors except blue.

Gaillardia, mixed varieties, grow one and one-half feet high, color red and yellow.

Platycodon grandiflorum three feet high, showy spikes of blue flowers, *Platycodon Mariesi*, one foot high, flowers also blue or white.

Rudbeckia speciosa, 3 feet high, yellow flowers.

Agrostemma Flos Jovis, eighteen inches high, pink flowers.

Hollyhock grows six feet high, all colors, single and double.

Œnothera (*Lamarckiana*), three feet, large yellow flowers, biennial.

Lychnis Haageana, mixed hybrids, one foot high all shades of white and red, *Lychnis Chalcedonica*, three feet, scarlet pink or white flowers.

Potentilla, mixed varieties, grows about two feet high.

Anemone Japonica, two feet, red or white flowers.

These if sown now will give good sized plants for next year's work. The Canterbury bells would be the better of a frame over them in the winter. Pansies daisies, and forget-me-nots will not need to be sown till near the end of August.

DAVID FRASER.

Mountain Side Farm, Mahwah, N. J.

PRINCIPAL BEDDING PLANTS USED IN CHICAGO PARKS AND GARDENS.

FLOWERING PLANTS.

The geranium is more largely used than any other genus, and the leading varieties noted are:

Single white: Mrs. G. M Garr.

Semi-double white: Mme. A. de la Chevalier, La Favorite.

Single pink: Ben Schroeder, the best of its color.

Semi-double pink: Emile de Girardin, Mme. Messenger.

Single bright scarlet: Gen. Grant, Rev. Watkins, Meteor, Gettysburg, Glory of Poitevine, W. A. Chalfant.

Single rosy scarlet: Alfred Tennyson, probably the best single red geranium.

Semi-double bright scarlet: Pres. Leon Simon, one of the best, Mme. Bruant, Guillan Mongelle.

Semi-double rosy scarlet: J. R. Lowell.

Semi-double dark red: S. A. Nutt, a decided favorite.

Single salmon or shrimp pink: Beauty of Poitevine, Mrs. E. G. Hill, Gloire de Cabonay.

Semi-double salmon: Dr. Jacoby.

Variegated leaved: Mountain of Snow, Earl Roslyn, Mme. Salleroi.

Sweet scented: Rose geranium.

Other flowering plants used include:

Ageratum, var. Cope's Pet.

Alyssum, Tom Thumb.

Asters, mostly of the Victoria strain.

Begonias Vernon and semperflorens.

Browallia elata.

Candytuft, giant strain.

Celosia or cockscomb, var. Thompsonii and dwarf Pres. Thiers.

Calendula, in variety.

Cornflowers in many shades and colors.

Daisy, Queen of Belgium.

Dianthus, var. Heddewiegii.

English daisies.

Feverfew.

Globe amaranth, both white and crimson.

Hollyhocks, double and single and in many colors.

Helianthus, in variety, but mostly the double perennial.

Lobelia, var. Paxtoniana and Erinus.

Marigold, var. tall African, both lemon yellow and orange colored.

Marigold, var. French.

Mignonette, var. Machet.

Nasturtium, var. Dwarf and Lobb's tall.

Pansies in many popular strains.

Petunias, single in plain, blotched and frilled varieties.

Phlox Drummundi, and var. Star of Quedlinberg.

Salvia splendens.

Snapdragons, mixed colors.

Ten weeks stock, in variety.

Torenia Fournieri compacta.

Vinca rosea and var. *alba*

Verbena, white, scarlet, dark red and pink. Nearly every gardener has a set selected from unnamed seedlings and propagated by cuttings.

Zinnias, in variety especially scarlet shades of velvety texture but nameless, being selected seedlings kept distinct and reproduced from seed.

Zinnia, var. the new dwarf.

Cannas hold an important place in summer bedding in and around Chicago

CYPRIPEDIUM SPECTABILE

because they do well and are effective. The prominent varieties are: Mme. Crozy and Queen Charlotte, scarlet bordered with gold; J. D. Cabos, light scarlet; J. C. Vaughan, darker scarlet, Alphonse Bouvier and Chas. Henderson, darkest scarlet; Egandale, dark red; Florence Vaughan, yellow with scarlet dots; Nicholson, yellow; Paul Marquant, salmon. Of these J. D. Cabos, J. C. Vaughan and Egandale have bronzed or purplish foliage and they would look well grown together were it not that the flowers of Egandale do not harmonize in color with that of the other two—Vaughan and Cabos shading together perfectly.

FOLIAGE PLANTS.

Variegated geraniums: Mme. Salleroi, Mountain of Snow, Earl Roslyn.

Alternanthas: *A. rosea, A. aurea, A. aurea nana, A. paronychioides, A. versicolor, A. latifolia*, the latter being especially liked as a border plant.

Coleus: Her Majesty, Golden Bedder, Fire Brand, Velvet Mantle, Acme, Verschaffeltii, Admiral, Wonderful, Spotted Gem, Jay Gould, South Park Gem, Brilliant.

Glaucous leaved: *Cineraria maritima candidissima, Centaurea gymnocarpa, Echeveria glauca.*

Gray-green plants: Santolina, dull green and variegated thyme.

Plain green plants: *Sedum acre, Othonna crassifolia, Sempervivum soboliferum.*

Yellow plants: *Pyrethrum aureum* or golden feverfew; (see also coleus and alternantheras.)

Red, or red and yellow: *Acalypha Wilkesiana, A. tricolor, Iresine Lindeni, I. metallica, Echeveria rosea, E. metallica, Oxalis tropæoloides.*

Both plain and variegated American agaves are largely used and *Pennisetum longistylum*, an ornamental, feathery grass is also in use to some extent as a border plant for canna beds. It is especially good for this purpose when planted in alternation with scarlet zinnias.

Vines for vases and rock work: Vinca, plain and variegated, Lobb's nasturtiums, *Maurandia Barclayana, Lophospermum scandens, Pilogyne suavis* or muskvine, Japanese hop, plain and variegated. F. C. SEAVEY.

Chicago.

LILY DISEASE.

Some of our lilies—particularly *L. candidum*—are becoming badly diseased with a kind of blight which strikes first at the leaves, cousing them to turn brown. The trouble has been spreading from *candidum* to other species. A paragraph which appeared on p. 307 of GARDENING makes it seem altogether likely that this is lily disease—something we have not had before. We sprayed recently with Bordeaux mixture, but cannot yet tell how far that treatment will check the disease. Will you kindly state what you would advise to be done? The lilies are growing in large beds in well drained soil and with full exposure to the sun. Where this disease is not at work they are very vigorous. C. E. S.

Ottawa, Canada.

It looks very much like lily disease. Candidly this disease has completely baffled us. We have tried several fung cides, beginning with them as soon as the lily stems peeped above ground and continuing till well into summer, but the treatment was neither a cure nor a positive preventive, it might have tempered the evil, however, and we think it did, lessening its virulence. While *Lilium candidum* is quite subject to the evil it is seldom killed out altogether; *superbum* is the easiest prey of any; *Hansoni* never has been affected so far as we have seen; *speciosum, Japonicum* and *elegans* suffer a little but not enough to discourage one in growing them, and so on. As soon as your *candidum* lilies bloom dig up the bulbs and examine them, if they are rotting or show signs of decay at the core burn them up, stems and all, and don't plant any more lilies in that piece of ground; if they are quite sound wash them and store them by in dry cork dust and a little sulphur for a month, then replant in fresh soil. Use fungicide sprays on the *speciosum, auratum* and *Wallacei* lilies.

OLD VON SION DAFFODILS.—F. N. B., Indiana, writes: "The second blooming of the double daffodil Von Sion is very poor indeed; it has reverted to many green petals. Are those bulbs worth keeping at all after blooming?" *Ans.* They are not. The Von Sions the first season after being imported from Holland bear good, full, double, yellow flowers, and they grow well and bloom again the following spring, but at this time the blossoms are greenish yellow, and so they continue to be ever after. In fact, bulbs of it we have had from England had green flowers the first season after planting here. We used to grow some of it for foliage, that is when we used to cut a lot of narcissus flowers of any kind of course we had to have some foliage with them, and rather than pluck their own leaves we cut the Von Sion leaves instead, and in this way we got some good of it.

LAWN MOWINGS FED TO CHICKENS.—Your note in GARDENING prompts me to tell you what I do with them. We feed them to the fowls. I have a small grass cutter that chops up the mowings as fine as I wish for chicks, and an inch long for mature birds. During long summer days green food is necessary to preserve good health in the fowls, and also to make their flesh plump and juicy; it should be kept before them in a basin of water. The mowings can be used, a quantity each day, if spread on a rack to prevent heating and they are slightly sprinkled.

Santa Cruz, Cal. M. H. C.

MARGUERITE CARNATIONS.—P. T. B, Geneva, N. Y., asks: "Will you please tell me the botanical name of Marguerite carnations." *Ans.* This carnation is generally supposed to be a cross between *Dianthus Sinensis* and *D. Caryophyllus*, or in other words between the Indian pink and some one of the summer blooming carnations, but to us on the outside the origin, as a certainty, is unknown.

THE LONG-SPURRED BLUE COLUMBINE.—In the June 15th number of GARDENING, after deservingly praising the American columbines, you ask: "Who can send us some seed of the genuine *cærulea*?" This year I have had beautiful flowers of the long-spurred blue columbine, and enclose you seed of the same. S. N. WARFEL.

Lancaster Co., Pa.

[Thank you.—ED.]

Orchids.

CYPRIPEDIUM SPECTABILE.

The generic name of this species is a compound word signifying "Venus' slipper" and the specific one latinizes the term "showy." It bears in this country the common names of the pink lady-slipper and the pink moccasin flower. It is a terrestrial orchid indigenous in the northern United States, and was first described in 1731. It this section its habitat is mainly on the upper sloping banks of deep shady ravines, where moisture at the roots is abundant during the growing time in spring and very dry during the summer months. The soil in which it grows is a yellow clay loam with but little leaf loam on top. It seems to choose situations some fifteen to twenty feet down the bank, where the overhanging shade of the ravine trees prevent the growth of rampant plants, and will not stand the crowding in the wild garden as well as its more dwarf and earlier blooming yellow sister, *C. pubescens.* It is somewhat shy in cultivation unless conditions are favorable, and is yearly becoming more interesting as it is gradually disappearing from its habitat.

The plants illust ated were gathered when in bloom during June, 1894, and were placed in their present position, as a temporary resting place until they could be planted with some others in the fall, but during that summer I noticed that my plants in the wild garden could not fight the battle against the asters and the

golden rods, so I let my last gathering remain where they were during the year 1895, and found them so vigorous and happy that I concluded to make the planting a permanent one. This year's conditions proved I was right, as they were extremely vigorous and one-third bore two flowers to a stock.

The bed in which they are planted is a heavy clay loam without a particle of leaf mould situated north of my barn. A lattice fence borders it on the west, thus securing the shade and immunity from winds natural to its native home. The natural lay of the ground sloped sharply to the west, but in order to have the bed look well, its surface was made level, consequently the bed at the west end is considerably over a foot higher than the ground just beyond the lattice fence. This imitates the quick drainage of the ravine banks and undoubtedly is a factor in their success. I also grow them successfully as pot plants, having had one for three years past that gave me eight blooms on my porch this season. It is wintered in the cellar, put outside in the spring and brought to the porch when in bloom. It opens its flowers generally ten days later than those in the soil. The plants can be gathered when in bloom by cutting deeply all around them with a spade so as to get a good ball of soil, cutting off the flower spike, planting in the shade and watering well. W. C. EGAN.

Illinois.

ORCHID NOTES.

Coelogyne Dayana, in bloom now, is a desirable, warmth-loving species, and easily grown, and it improves from year to year. Its flowers are a combination of dark brown, white and pale yellow, and are borne on long pendulous racemes, whose odd appearance suggests the name "necklace orchid." It blossoms during the growing season, when it must have plenty of water, and only requires a partial rest when it has finished its growths. It does best potted in two-thirds peat fiber and one-third sphagnum moss. We have English potted plants grown in their heavy peat, which they still stick to, and the plants don't do as well in that as they do in our fibrous material. Also in bloom are *Lycaste cruenta*, which is easily grown, and *Masdevallia Harryana*, a free growing and free flowering orchid which should never be allowed to get dry and requires the cool greenhouse for its successful culture. Use for it well drained small pots and a compost of half peat fiber and clean sphagnum moss. *Miltonia vexillaria* is a beautiful orchid requiring an intermediate temperature; it is liable to "spot" if kept too cool. It is very subject to thrips. A good way to rid it of this pest is to dip it occasionally in a little weak tobacco water—taking care to shake it dry before placing back on the bench. *Cattleya Dowiana C. maxima superba* and *C. crispa* will soon be in bloom.

Orange, N. Y. WM. FITZWILLIAM.

NATIVE ORCHIDS.

H. M., Lebanon, Ky., asks: "Is there a list published of all orchids growing wild in the United States? Are there any dealers in the United States from whom I could buy such orchids?"

The different Manuals of Botany of the United States contain full lists of the sections of the country they cover, for instance Gray's Manual has the orchids of the northern and eastern states; Chapman's of the Southern States; Coulter's of the Rocky Mountains, and Sereno Watson's Botany of California of those of the Pacific country. But if you write to W. H. Harrison & Son, Lebanon Springs, N. Y., for their list of native plants you will find most of our native hardy orchids described in it, and if you want to get some of the plants Messrs. Harrison are very reliable people to deal with.

ORCHIDS.

Many different customs are employed in the culture of hothouse orchids. Too often they are found smeltering in a house with a temperature of 98° to 100°, with a stagnant atmosphere. I do not know a more destructive way than this; a moment's reflection will convince the most careless that orchids, like all other plants, are creatures of the air, and should they claim the most pestilential swamp as their habitat they are nevertheless constantly supplied with invigorating air and if it should happen that in their location they should be smothered by surrounding foliage and retain moisture too long they show disease, spot and decay just as in a smothering, moist, close heat in a hothouse without ventilation. Therefore I would caution all growers to make a strong point in having free circulation from top and bottom ventilators, without chilly drafts. I also advise the heating to be kept up the year round; of course many days and nights only just enough to make a circulation and then there will be nights and days too that fire heat will be required, as the foliage should become dry once in 24 hours. When I say dry I do not mean pot dry but foliage dry, and this should be towards evening so that a gentle syringing should be given a little before sundown, keeping sufficient ventilation top and bottom so that in the morning the plants will again require the same treatment. The amount of ventilation must be regulated by outside conditions and amount of fire heat used; at all times judgment should be used in those important features of orchid culture.

WM. MATHEWS.

The Greenhouse.

MY GREENHOUSE.

Since writing you last, I have built me a nice little greenhouse 7 feet by 14 feet, aided by your kind suggestions on GARDENING of January 15, 1894, page 133. The greenhouse is attached to my sitting room, with a large glass sliding door between the two, so when I use tobacco or other bad fumes, for the destruction of insects, no bad smell or smoke gets into my sitting room; at the same time, I can see what is going on in the greenhouse. The house has a southern exposure, roof made of one-quarter inch, ribbed skylight glass, and has two ventilators in the roof next the wall. The floor is made of two thicknesses of flooring with a slight pitch to a small gutter, which carries off all drip or waste water, that falls on the floor. I heat the house with 5 runs of 1¼-inch pipe, hot water. The benches run all ar und the house, on some there is an inch or so of coarse sand on which I set the pots. At one end I have a bench 3½x4 feet with 5 inches of soil, and a small door leading out of the house, to carry pots, soil, and rubbish out, without going into the sitting room. I had a ½-inch faucet attached to the city water service put in the greenhouse, to have water handy. In this house I have an abundance of beautiful plants and flowers. I have one rose of each, Bride, Bridesmaid, Perle and Wootton planted in the 5 inches of soil and they are doing fine. At this writing I have 13 very beautiful fancy leaved caladiums in all their glory, as well as other choice foliage plants, Now I am no florist, in fact, at the start, could hardly tell the name of any common garden plant, but I have been a subscriber to GARDENING from its commencement, and by close attention to its valued readings I am enabled to make our house a bower of beauty and a joy to all.

1. MAGNOLIA GRANDIFLORA var. EXONIENSIS.—How should I treat this plant, must I plant it out permanently in the open ground or must I pot it and plunge it in the ground during the summer, and keep it in the greenhouse over winter, how soon should it bloom?

Ans. If *Magnolia grandiflora* is hardy in your town, the variety *Exoniensis* will be hardy there also, but probably it is not hardy. In this case you can grow it in a pot or tub and winter it in your cellar as you would a hydrangea, oleander, or orange tree; it will stand 20° of frost without hurt; indeed we got it to live and bloom nicely in a warm sheltered place at Dosoris, where we had occasional zero frosts. But far better take good care of it, to do this it must be protected in winter. When it may bloom is uncertain, but we have had 4 feet high plants blossom; when they once get to blooming they are apt to bloom every year after.

2. CAMELLIAS.—I plunged my camellias in pots, outside, in a shady place, and will take them in the house this fall, for blooming, is this right?

Ans. Yes, quite right.

3. MY FANCY LEAVED CALADIUMS throw out a bud or flower stock, must I let this develop or cut it off?

Ans. It matters very little so far as the welfare of the plants is concerned. If the caladiums are small or weak by all means break or cut out the flower stems. As the flowers are not at all showy or attractive, and our object in growing these caladiums is to have their beautifully marked and variegated leaves, whatever detracts from the development of these leaves should be removed, so we advise, yes, remove the flower stems as soon as they are noted.

4. JASMINUM.—I have a large jasmine in a 6-inch pot, the florist called it *Jasminum floribundum*, it bloomed fine all winter and spring, how must I treat it now?

Ans. If you had given us a slight description of the plant we might have been able to help you, as it is we are afraid to advise you not knowing what jasmine you refer to. "*Floribundum*" cannot be the proper name of the plant you refer to.

5. PARKINSONIA ACULEATA (Jerusalem thorn) how to treat it?

Ans. Grow it in a pot in the greenhouse in winter and plunge it out of doors in summer.

6. CRAPE MYRTLE? It is a shrub that is hardy from Baltimore southward, but in the north it must have protection; in fact it is to the gardens of the south what lilacs are to those of the north. In the north it is generally grown in pots as we do with hydrangeas and oleanders, brought into a cool cellar over winter and plunged out of doors in summer.

7. DURANTA PLUMIERI?

Ans. Grow it in a pot in greenhouse over winter and plunge it outside in the summer time.

8. PASSIFLORA QUADRANGULARIS VARIEGATA and CISSUS DISCOLOR. Should I keep

A RUSTIC SUMMER HOUSE.

them constantly growing, or do they require rest?

Ans. The passion flower vine is an evergreen and must be kept somewhat moist all the year round. It requires greenhouse protection in winter. The cissus, however, is practically a deciduous vine requiring a rest in winter; at least while we can keep it on as young plants they may be retained as evergreen, but old plants should be rested by being kept dry in winter. AUGUST SHIVELBINE.
Missouri.

SUMMER TREATMENT OF CARNATIONS IN THE FIELD.

The main point in caring for field grown carnations during the summer is proper and thorough cultivation. I much prefer to plant my carnations in rows 3 feet apart and 12 inches asunder in the row, using a horse and Planet Jr. horse hoe constantly, running through the rows not less than once in two weeks and if rains are frequent once each week.

The cultivator is regulated so as to cut not to exceed 2 to 2½ inches deep. It is this constant loosening of the top soil between the rows that keeps the under soil where the main root growth takes place in that moist condition (even in dry weather) so essential to a proper vigorous growth. The cutting off of the roots between the rows, which so many complain of is of much benefit, causing a spongy growth of fibrous roots close to the plants as well as balancing the top pruning which the plant receives in topping back. If the cultivating is done after each rain and a space 8 inches wide in the row when the plants stand is left uncultivated the plants will not receive any check of any moment.

In hoeing around the plants care must be used to hoe very shallow and not to draw the soil away from the plants, leaving the surface roots exposed. When one has pulverized the soil about the plant leave three-quarters of an inch of fresh loose soil about the plant (neck must be free however) so that the surface roots will be nicely mulched with the pulverized soil.

In pinching back I prefer to leave the growth to advance well into bud formation and then break or cut off, leaving 3 or 4 good breaks to come. Pinching is best done after a rain, when the plants are crisp and cut or break easily. I go over the fields and cut back as often as the growth shows it is needed, pinching right up to the time of planting in.

In spraying we use a solution of sulphate of copper, 1½ pounds to 50 gallons of water and spray each week if possible. Care must be used in spraying to keep the mixture thoroughly agitated, as sulphate of copper is heavier than water and the solution will become concentrated at the bottom of barrel or sprayer if much care in stirring is not used.

I prefer not to irrigate if possible, but if I had proper arrangements would not hesitate to do so, especially in the interior when drouths prevail. Irrigation must be done thoroughly and followed up when needed, and above all things don't neglect to keep the cultivator going while irrigating even more thoroughly than when not. C. W. WARD.
Queens, N. Y.

THE VALUE OF LEAF MOULD.—Leaf mould is simply tree leaves rotted to earthy fineness. It is a light open soil excellent for seeds, seedlings, fine rooted plants like azaleas and rhododendrons, and ferns, and capital for rendering tenacious clay open, pervious and friable. It has no great manurial value, in fact we look upon one load of farm manure as being worth at least three loads of leaf-mould so far as plant food is concerned. But never before now have we come so sharply face to face with the value of leaf mould for potted plants. The loam in Schenley Park, even the rotted surface sod loam is tenacious clay; being composted with manure lightens it somewhat, but after being used in pots and watered daily for some months it isn't the genial soil we would wish it were; now a large proportion of leaf soil added to this compost would have a sweetening, opening effect upon it that would be of great benefit to many plants. But alas, the leaves were raked up and burned up! Not even a cart load saved for rhododendrons. This has stopped, however, and in the future the leaves shall be saved as jealously as the sod, and rotted for potting and planting purposes. We can feed our plants from the surface with mulchings and liquid manure, but no fertilizer either in the soil or as a mulching can have the same opening, ameliorizing effect as the leaf mould mixed in the compost.

TUBEROUS BEGONIAS FROM CUTTINGS.—A western reader asks: "Will cuttings of these root and grow?" *Ans.* Yes, but the process is tedious and often uncertain, and it must be done early enough in the summer to ensure the formation of a small tuber before the cutting goes to rest in winter, for it will rest. Tuberous begonias are so easily raised from seed that few people now bother raising them from cuttings, except fanciers who wish to perpetuate in exact form certain varieties.

IF YOU appreciate GARDENING please recommend it to those friends to whom you know the paper would be useful. You can assist us materially in this way.

GARDENING

WILLIAM FALCONER, Editor.

PUBLISHED THE 1ST AND 15TH OF EACH MONTH

— BY —

THE GARDENING COMPANY,

Monon Building, CHICAGO.

Subscription Price, $2.00 a Year—24 Numbers. Advertising rates on application.

Entered at Chicago postoffice as second-class matter.

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All communications relating to subscriptions, advertisements and other business matters should be addressed to The Gardening Company, Monon Building, Chicago, and all matters pertaining to the editorial department of the paper should be addressed to the Editor of GARDENING, Schenley Park, Pittsburg, Pa.

GARDENING is gotten up for its readers and in their interest, and it behooves you, one and all, to make it interesting. If it does not exactly suit your case, please write and tell us what you want. It is our desire to help you.

ASK ANY QUESTIONS you please about plants, flowers, fruits, vegetables or other practical gardening matters. We will take pleasure in answering them.

SEND US NOTES of your experience in gardening in any line; tell us of your successes that others may be enlightened and encouraged, and of your failures, perhaps we can help you.

SEND US PHOTOGRAPHS OR SKETCHES of you flowers, gardens, greenhouses, fruits, vegetables, or horticultural appliances that we may have them engraved for GARDENING.

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HOLLYHOCKS AS CUT FLOWERS.—We learn from the local newspapers that "In recent entertainments given at the East End (a residence part of Pittsburg) single hollyhocks were used as the decorative features. In the arrangements the stalks of the hollyhocks filled umbrella holders and long-necked jars, or rested in great sheaves against cabinets and in alcoves, and in other ways were utilized to charming advantage."

DOUBLE HOLLYHOCKS are not as hardy as the single ones, they are not as vigorous or long-lived, and they are much more susceptible to leaf diseases, far better have a plain single flower than an ill-favored double one, and an ugly shade of color in a double flower is more unpleasant than it is in a single one. Notwithstanding all this, however, handsome full double, clean-colored hollyhocks have the warmest spot in the affections of the people. Hollyhocks raised from seed this fall should bloom next summer; but those sown in spring won't bloom in summer of that year.

FLOWERS OR PAPER, WHICH?—*The Gardening World* is somewhat exercised over "the American fashion of selling pot plants rolled up in green, pink, yellow and other colored paper, tied around with narrow ribbons to match. This is not merely for the purpose of protection, so that the purchaser can carry the plant home safely. Oh, no; it is meant for adornment and that the plants may be used for household decoration in such nonsensical and tinsel trappings. * * This is an attempt to paint the rose and gild the lily."

HEDYSARUM MULTIJUGUM is a little Japanese hardy shrub with racemes of bright rosy purple flowers, and it is one of the high priced novelties in its line and has a reputation for neatness and great floral beauty. That all may be true enough, but certainly the specimens in Schenley Park don't behave as if they'd be good and contented Americans. We mustn't despair, however, we'll try the a under different conditions. Maybe we may yet hit upon what will suit them. They now occupy a sheltered but open position in a nursery bed, and are mulched.

THE PRICKLY POPPY.—L. E. W. sends us two flowers for name. The large white bloom with the glaucous prickly leaf is one of the prickly poppies (*Argemone*), quite pretty plants, natives of California and Mexico, and easily raised from seed in our garden. The little sprig of very small blooms was so much discolored as to be unrecognizable. In sending plants for name kindly send them direct to us to Schenley Park, Pittsburg, and not to the Chicago office. When sent to the latter place they have to be opened and remailed to us, so that when green sprigs reach us they are apt to be blackened to such an extent that we cannot tell what they are. And it will help us greatly, too, if when you send the flowers you will at the same time tell us all you know about them.

SINGLE HOLLYHOCKS are "all the rage" in this town, that is we find them in most every yard, pretentious as well as neglected; they fill up odd and neglected corners in company with sunflowers and tawny day lilies, as well as belts and beds in well trimmed gardens. Apparently they are healthy, happy and hardy, and good perennials, and really they are handsome. Mr. J. R. Mellon has one of the finest displays in Pittsburg. The plants are in a border 300 feet long by 4 feet wide, along the boundary line of his lot, and in the deep rich land there they make a great sight rising 7 or 8 feet high, with big leaves to the ground. The colors comprise yellow, pink, cherry, crimson, white and intervening shades. In winter a light straw mulching affords their crowns protection, also it saves the little seedlings from injury. In growing single hollyhocks avoid the purples. They have an unpleasant look; clean, clear pinks, blush, white and yellows are the favorite shades.

HYPERICUM MOSERIANUM.—Our nursery grounds at Schenley Park are spread on both sides of a high swell of open land, and the ground is of a stiff clayey nature. Near the top, running lengthwise was a nurserybed containing five rows of *Hypericum Moserianum*, one hundred plants in the row. This is the second year they have been there. Last winter, an exceptionally severe one, they weren't mulched or protected in any way, but their tops were left on them; the result was rather curious: The plants in the two outer rows were nearly all winter killed, but those in the three inner rows have all lived, and are now fine big clumps in good bloom; even they, however, were cut to the ground, but they recovered very vigorously. This satisfies us that the plant is not hardy above ground, but with a surface mulch or protection of neighboring bushes it is quite hardy at the root. This is enough for us, and treating it as a spreading herbaceous plant or as an under or front shrub in shrubberies, it is a most valuable acquisition.

HOW TO GROW HARDY FLOWERS.—Look at that group of hardy perennial delphiniums shown in our illustration, page 325. Isn't that a beautiful picture? and observe how aptly placed the plants are. The common way to arrange delphiniums in the garden is to set a clump here and there in the border, or run a row of them along the back of the border. Now, if that's the way you grow them, go out into your garden and take a look at them there, then look at this picture and conclude for yourself which is the prettier arrangement. The same with the cypripediums shown on page 327, if you want telling effect group your plants together, you will then be able to give them better cultural conditions than if you stuck them here and there through your garden. Our trillium picture on front page July 1 issue is another excellent example of grouping plants of a kind together. But mind there is a vast difference between effective, tasteful grouping and bunching a lot of plants together; the bunching process is a very harsh and ungraceful way of using plants.

RED SPIDER AND WET WEATHER.—We all know that hot dry weather is favorable to the development of red spider, and we are taught that wet weather, is inimical to its welfare. The last two summers ('94 and '95) at Pittsburg were exceedingly dry, and red spider was quite prevalent on the trees and shrubs, especially so in the park nursery on a block of *Spiræa Billardii* and *S. Fortunei*; but this year, from the breaking up of winter till now, the middle of July, has been unprecedentedly wet and the very opposite to what we should expect as at all favorable to the spread of spider. Strange as it may seem, nevertheless, those blocks of shrubs that were badly infested last year are much worse this summer, and to-day there isn't a leaf on one of them that isn't covered with the pest and "brown as a berry," and the red spider is spreading. Blocks of trees and shrubs—we have over 200,000 plants in the park nursery—that were clean last year are clean this year except where near the infested ones, but in all cases, our nursery foreman tells us, what were infested last year are worse this summer.

RED SPIDER ON VERANDA VINES.—A lady came to us the other day about a fine big pipe vine that covered a trellis and shaded one side of her house veranda; its leaves were getting brown, they were covered with red spider. A florist she had consulted told her to wash the leaves with soap and water, but she could never do that. In the case of a big vine that was impracticable advice. She had city hydrant water and a hose, so we told her to get out the hose and attach it to the hydrant, bring it in on the stoop, turn the water full on and et fly at the vine from the inside (the stoop side). Do this twice a day for a while, no stinted draught at all, but a thorough drenching, aiming the nozzle so as to wash the underside rather than the upperside of the leaves. We have to keep at it till we get off all of

THE BURBANK CANNA

the old spiders and continue till the eggs hatch out and we get off all the young ones too. While this hosing may not completely eradicate the pest it will keep it in such subjection that its presence will be little felt. What about insecticides? We have many and some are effectual, but in inexperienced hands all may be dangerous, and preparing and applying them is neither a clean nor a nice job for a lady.

CRAMBE CORDIFOLIA.—Since our illustration of this plant in the June 15 issue, page 291, a good deal of interest has been taken in it, and deservedly, for it is a noble plant. But it isn't one anybody wants in a small garden; it requires room to grow and lots of room to show itself when it is grown, it isn't a plant for the flower border at all; there you would call it coarse; its proper place is isolated near the edge of the lawn in such a situation as one would set out a bunch of yuccas, or single hollyhocks, or a specimen shrub. Mr. Egan writes that the splendid growth shown in our picture was from the second year old crown, but since then that crown has decayed and lots of minor ones have formed all around it, and asks the cause. This is perfectly natural, to preserve the same crown year after year would be unnatural. The flower stem is simply the continuation of the crown, and when it dies the crown is dead, but the root being perennial a host of other buds or minor crowns form around the base of the old crown for next yea 's blooms. The more of these buds or crowns that are allowed to remain and develop the smaller the growths are likely to be; for effect better have one big crown bearing a 7-foot high head of bloom than many crowns in a mass and reaching only a 4-foot development. All of this is pertinently and practically shown in the cultivation of seakale (*Crambe maritima*), a lesser species than *C. cordifolia*, and a much esteemed vegetable largely grown in Europe, and in a limited degree as a forced vegetable in this country. In growing seakale we aim to use single crowns only and seldom a multiple crown, as one big head from a single crown is much more desirable than many sprouts from a "spent" or multiple old one. We raise the plants from seed, growing them till the second year, when we dig them for forcing and get fine, big, single crowns; should they attempt to bloom in summer, the flower stem is pinched out and the extra crowns rubbed off, everything practicable is done to throw the full strength of the plant into the development of the single crown. We also grow them, and it is the commonest method too, from stout root cuttings, as we do horseradish. Old crowns of seakale after they have bloomed rot out in the middle in the same way as do those of *Crambe cordifolia*, so that this decay of the hearts of old crowns is the natural course and no disease at all. Hollyhocks, foxgloves, and many other plants do much the same thing.

UNHEARD OF WISTARIA BLOSSOMS.

Please read the following letter from one of our readers in Japan. In speaking or writing about the famous *Multijuga* wistarias of Japan we say "with racemes of flowers between two and three feet long;" if we spoke of them as being five feet long you would think we were romancing. But you know how climatic and cultural conditions have a great deal to do with the floral perfection of plants, and racemes that may be 34 inches long in this country (Mrs. L. Chrisman, of Chrisman, Virginia, sent us racemes 34 inches long, that were grown in her own garden) may in the genial moist climate of Japan attain to almost double that glory. Anyway we are proud to know that Schenley Park will soon be enriched with living plants of this wonderful vine. I was largely in this way, a rarity from this friend and a unique plant from that one, that the famous Dosoris collection was built up, and we rejoice to realize that Schenley is advancing in the same road, for we already have received a good many varieties you may year of later.

KOBE, JAPAN, June 17, '96.

Your issue of May 15 is before me and it is like every number of GARDENING in fact, full of interest to me, and must be to all its readers. About wistarias: I saw on a tree (about a hundred old I am told) racemes of flowers that measures 57 to 60 inches in length. I do not mention this as unusual with old trees but because I have never read in the home papers that they reach anything like that length. In order to ensure early flowering old trees are dug up in the mountains and after a year or so in the nursery they are grafted. I shall have a good number next year grafted with scions of the above mentioned old tree and if you wish will send you a couple with pleasure. [Thank you, we shall be delighted to get them.—ED.]

H. E. AMOORE.

THE BURBANK YELLOW CANNA.

Enclosed you will find a pressed flower from Mr. Vaughan's new California canna. I saw it growing in one of the greenhouses out at Western Springs. It struck me as an unusually strong grower—the plant set out in a bench having sent up a big bunch of such thick stalks with big leaves of a more leathery texture than any I have before seen I have never seen anything approaching the flowers (among cannas) either in size or the peculiar frilled appearance of two of the petals. It has an orchid-like aspect. Each petal of a number tried measured fully *two inches in width*—some 2¼ inches. It is a handsome clear yellow color with touches of scarlet low in the throat. [The flowers sent are very full and the petals measure what you say; the color is a good clear yellow, and the frilling is quite noticeable.—ED.]

F. C. SEAVEY.

Chicago, July 2, '96.

WILD VS. NURSERY-GROWN SHRUBS.—O. G. B., Frankfort Springs, Pa., writes: "Since I have been gardening for pleasure I have discovered a number of handsome native shrubs, however nearly all are so difficult to transplant from their native

haunts that I prefer nursery-grown stock." That is the practical man's view too, but it isn't the beginner's. The latter, seeing such pretty bushes growing wild and free for the digging, looks upon it as a waste of money to buy shrubs from a nursery, so he hitches up a wagon and shoulders a shovel or spade and betakes himself to the woods. After getting there he finds that bushes that look pretty in mass are lean, scrawly and unbecoming when dug up separately; the digging is rough work, and the roots are not always at home, but stretching far away and interlaced among those of their neighbors, so that when the ball is dug up its mass is made up more of roots cut off from other bushes than of those attached to the dug-up plant. Unless provision is made for moistening the roots as soon as they are unearthed, and keeping them moist till they are planted again, the fibres are apt to shrivel and die and the shrub suffer in proportion. The wild plants are not likely to exactly fit your wants; they look shabby, and to cut them down as we ought to enough to counterbalance the loss of roots they would be stumpy and uglier than ever. Nursery-grown plants are grown as individuals and not in thickets, hence have good bodies; they are well rooted, having been once or oftener transplanted in the rows, and their roots are not matted up all around with those of other plants. They are dug carefully and at the proper season, and preserved from drying influence, and they reach you just when you want them, and there is no bother or uncertainty with them. Wild shrubs are a risk.

PLANTS FOR NEXT SUMMER.—If you haven't already sown them, better sow a lot of columbine, delphinium, perennial coreopsis and gaillardia, hollyhocks foxgloves, campanulas, sweet williams and the like, and get them into strong, well-rooted plants before the winter sets in. If you sowed them earlier in the year and they are now up nicely, get them pricked off into beds or frames, far enough apart to allow them make good growth without choking each other and weakening their crowns.

COMMON WILD FLOWERS OR WEEDS.—Among the common and most conspicuous wild plants or weeds now in bloom by the road sides and near the edges of our woods are moth mullein (*Verbascum Blattaria*), tall bellflower (*Campanula Americana*), wild teasel (*Dipsacus sylvestris*), starry campion (*Silene stellata*), man-of-the-earth creeper (*Ipomœa pandurata*), ox-eye daisy, wild carrot, catnip, wild verbena, the common yellow toadflax and the St. John's wort (*Hypericum perforatum*).

ARE WE BETTER BEHAVED? In an English paper (*The Gardeners' Magazine*) we read: "It is a common occurrence to see large numbers of cyclists returning home carrying large bunches of flowers, and were they honestly obtained no further proof could be desired as to the existence of a genuine affection for them. Some of these bunches are undoubtedly the gifts of friends. Others are obtained by purchase, but in the majority of cases they are the result of pilfering the hedgerow or garden." Although the bicycle craze is pretty high with us in this country, we don't think stealing flowers is one of its evils.

THE ADVANTAGE OF RAISED FLOWER BEDS.—The flower beds here are spread on a broad stretch of level lawn in front of the Phipps Conservatories; the land is very clayey, retentive of moisture and ill drained, and as we have had an uninterrupted wet season, we are now seeing the evil effect of poor drainage. Wherever the earth in the beds is raised well above the level of the ground all of the bedding plants are doing well in it, but at the ordinary ground level most everything is suffering; sempervivums, santolina and centaurea are dying out and even coleus isn't as happy as it is in drier ground.

"LILIUM PARRYI is a handsome California lily that belongs to the *pardalinum* group and has rich yellow flowers, strong shoots bearing a dozen or even more blooms. It is easily grown in moist peaty soil with the partial shade of shrubs near, and those who have a suitable place for it might plant a bold group." So says the London *Garden*. A dozen blooms to a stem is finer than we ever saw it. In a wide patch in a rockery at Cambridge it grew and bloomed nicely with us, still it is one of the pretty lilies that has never become popular; few people grow it, more's the pity, for it is a chaste and beautiful flower, but neither large, bold, or startling at all.

THE COMICAL TOAD.—A New England reader writes: "Have you ever fed a toad with a caterpillar or potato bug? If not you have lost one of the most comical sights to be had, and one which we in our hurry to get every creature out of harm's way are apt to overlook. The toads are very useful little beasts, ugly though they be, and one can train them so that they do not fear our approach How alert are they after dark, hopping in the walks of the garden and making many a snatch at the bugs they come within reach of. It takes five years for a toad to be full grown." Yes, yes, the toad has its good points and its bad ones That it is a voracious and persistent insect trap we know very well, we have used hundreds of them for this purpose, and when we were a boy we tamed them and fed them. Some 24 years ago we told how in the London market gardens we paid from three to four cents a dozen for toads to put into the cucumber frames to eat up the insects. Their bad points consist in the way they have of elbowing out a comfortable little resting place for themselves in our flower beds, seed beds, and even in our flats or seed pans.

CHICKWEED IN THE LAWN.—L. E W., Gordon Park, asks: "What is best to do this autumn with a lawn which is full of chickweed?" *Ans.* Chickweed in lawns is very troublesome in spring and fall, especially where the ground is a little shaded by trees, or is moist; it grows because the seed is in the soil, and it chokes out the grass. Plowing or digging the ground might not help you any, for the earth being full of the chickweed seed the pest would be sure to grow up The thing to do now is to discourage the growth of the chickweed and encourage the grass, till the latter becomes so deep rooted and matted as to choke out the former. Prepare a big heap of good field loam—from an open corn, grain or pasture field, and not from the garden—and mix a lot of fine manure with it; horse manure freed from the rank straw is good, or cow manure, for it contains much grass seed, will do. In August mow and roll the lawn, and with a new steel rake, rake off all of the chickweed and other weeds you can tear out of the ground, then apply a heavy dressing of the previously prepared compost and sow some red top and Kentucky blue grass upon it, raking it in lightly and rolling it. If the chickweed continues to grow more vigorously than the grass, keep it mowed down and raked off; never let it get the better of the grass, and instead of top-dressing the lawn with stable manure in winter use wood ashes, light dressings of nitrate of soda, and other chemical fertilizers, but be very wary in applying them. Then you have got to be more vigilant in spring than in fall, for chickweed starts to grow very early, and blooms and ripens seed before grass makes much headway. Remember that there is no application that you can put on your land that will destroy the chickweed without also injuring the grass.

The Fruit Garden.

FINE-FLAVORED STRAWBERRIES.—J. R. M., New London, Conn., asks: "What are the best flavored strawberries? What do you think of the one named Brandywine?" *Ans.* The best flavored sorts is a matter of location and cultural conditions. We have had splendid, big, scarlet, juicy berries of Sharpless one year so sour as to pucker the mouth, and another year most as high flavored as an Elton Pine. In the "sour" year the ground and weather was wet, in the "sweet" season the ground was moist but the weather quite dry. The later pickings are better flavored than the first ones. We have no varieties with so pronounced a flavor as the European sorts such as British Queen, Sir Joseph Paxton, Prince's Pine and Elton Pine have got, and unfortunately while these varieties submit to pot and greenhouse cultivation with us they are worthless out of doors. The Marshall is one of our best flavored sorts; Timbrell, where it does well, is very good; Cumberland has a mild pleasant flavor; and Parker Earle is favorite home berry. Brandywine is an excellent berry so far as we have seen it, what it may be in other parts of the country though we cannot tell. Crawford, where it does well is much esteemed for its fine quality.

FEAR THE BLIGHT.—R. L. T., DeKalb, Ill., has some young dwarf pear trees that were perfectly healthy a few weeks ago, but are now affected with a blight which blackens the leaves and shrivels the wood. *Ans.* It is no doubt the fire blight. Cut out every bit of affected wood and burn it, and in cutting be sure to cut down into the healthy wood so as to make sure that you have got every bit of diseased growth. Root out the dead plants and burn them up too; if you let them stay in the ground they propagate and spread the disease which is fungoid and carried in the atmosphere. There is no known cure for it. Early and repeated sprayings with Bordeaux mixture are said to act as a preventive, at least in a partial way.

"MY JAPAN PERSIMMON, WHAT AILS IT?"—M. H. C., Santa Cruz, Cal., asks: "I bought it in March, '94, and as I requested the nurseryman to prune it I did not do so, although it was top heavy and had large roots. It is alive but has never made a single leaf; it is just as bare as the day it came." *Ans.* We cannot tell. But if it doesn't show pretty promising signs of a speedy and good growth, we would very soon grub it up and throw it away and make room for another. When it was planted we would have headed it considerably, this would have been for its good, and induced an early start into new life.

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Butler Co., Pa.

Thank you for the information, every little helps us. All of the plants you name are excellent for the purpose and we hope to use them extensively. We have just finished the first handling of a steep high hillside, stiff clay and shale rock, supported at the base by a stout stone retaining wall, and how we are handling it may interest some of our readers. We picked that bank all over, removing the large rock that was near the top, and so as to leave a loose surface twelve or more inches deep; but this is nothing except dark red clay and disintegrated rock. As soon as we can get manure enough we shall put a heavy coat of manure on top and pick it in, both for use in fertilizing the soil and in keeping it open, and then we shall plant it. Along the top of the wall we hope to plant *Rosa Wichuraiana* to drop as a mantle over the wall, also the wild prairie rose, Japanese multiflora roses, Lord Penzance's roses, sweet briar, and others, with here and there climbing hydrangea, barberry, climbing waxwork, wild clematis, prostrate euonymus, and many others of that nature to clothe the wall, but so full and diversely as to appear natural. When the plants grow up we can easily thin them to their proper places and dimensions. Away up on the bank we shall plant all of the trees and shrubs you mention together with locust, matrimony vine, green ash, burr oak, osage orange and many others, also plant many acorns and other nuts, and for carpeting the surface spread Virginia creeper, Japan honeysuckle, clematis, man-of-the-earth creeper, wild hydrangeas, and so on. Then plant thousands of columbines and foxgloves, moss pinks, coreopsis, and other natural plants, and sow broadcast all over the land with wild poppies, yellow eschscholtzia, annual coreopsis and the like, being particular that whatever is used shall be good species and not garden varieties. Then hold off and wait for the survival of the fittest. Get the ground covered as rapidly as possible to save it from parching sun and wind, hold the rain there when it falls, and prevent washes when heavy rains come.

"ICE KING PRIMROSE."—I noticed in GARDENING some time ago that you want something for some exposed hillsides in your park. I send you by to-day's mail one-half dozen "Ice King Primrose," which I wish you would plant in some sunny spot, protect for a few days and I think they will give you flowers yet this year. We have had them in flower ever since May 15 and will continue to bloom till frost. [The plants have been received. They are some kind of *Œnothera* or evening primrose, and not a true primrose (*Primula*) at all.—ED.] E. C. NEWBURY.

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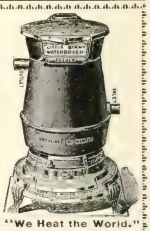

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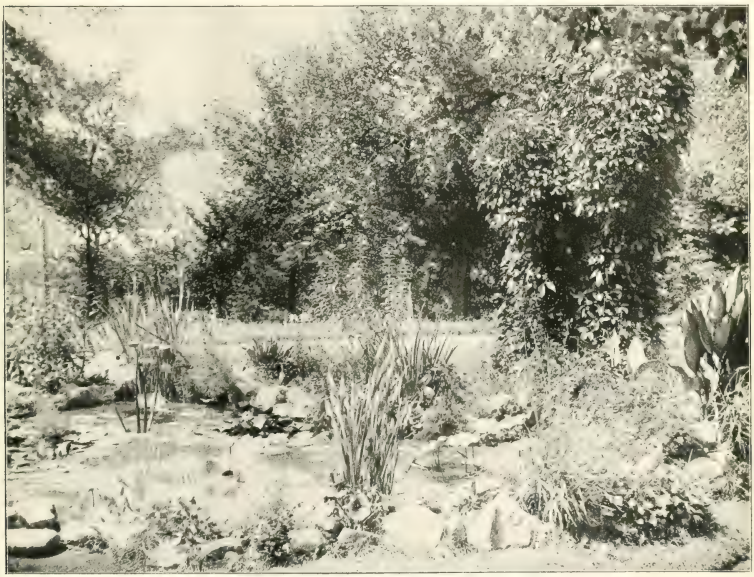


ONE OF MR. ERNEST MAYER'S WATER LILY PONDS AT BEAVER FALLS, PA

Aquatics.

AQUATICS.

The weather this season—in this section of the country, (Pennsylvania)—has been particularly favorable for growing tender aquatics. Amateurs, as a rule, will put plants out too early, but this year's warm early spring was an exception to our usual weather, and everything put out went right ahead and is now in advance of the season because there were no late frosts.

We have three ponds, one for hardy lilies, one for tropical and one for lotus. In the hardy lily pond are growing *N. tuberosa*, *N. pygmæa*, *N. odorata sulphurea*, *M. odorata rosea*, *N odorata Caroliniana*, *N Marlicea carnea N. Marliacea chomatella*, *N. Marliacea carnea*, *N. Marliacea albida N. alba candissima*, and *N. alba candidissima gigantea*.

In the lotus pond there are five different varieties of lotus, but last year only *Nelumbium roseum* and *N. speciosum* bloomed, and this year so far only *N. roseum* has bloomed.

In the tropical lily pond the following are growing, *Victoria Regia*, *N. Zanzibarensis*, *N Zanzibarensis azurea*, *N. Zanzibarensis rosea*, *N. scutifolia*, *N. Columbiana*, *N. dentata*, *N. Devoniensis*, *N. Sturtevantii*.

Scattered around among the three ponds are the following plants: *Scirpus Tabernæmontana zebrina* (porcupine rush), *Cyperus alternifolius*, *Eichhornia azurea*, *Eichhornia crassipes major*, *Limnocharis Humboldtii*.

It has long been a question in my mind whether it is better to leave hardy lilies year after year in soil, giving good soil and ample room to start with and allowing them to become established, or dividing up the roots every year and giving them new soil and using suitable boxes, say 24x24x10 or 12 inches. Previous to last year our hardy lilies have always been put in boxes, and this experiment of planting them in the soil was to try which method was the better of the two, and will now state that hereafter the boxes will be strictly adhered to, as by this means far more blooms can be got.

The only theory that I can give for the plants not doing so well in the deep water is that the leaves keep the buds

continually dark, while in the case of the boxes they get the full bright sunshine, and certainly warmer water, as they are never more than six inches from the surface, whereas when they were planted in the earth in the middle of the pond they had nearly two feet of water over them.

In the hardy lily pond there is a lily that looks exactly like *Laydekeri rosea*, only it is white (it is evidently one of the parents of *Laydekeri*) and it is said to be *pygmæa*, but having grown *pygmæa* myself and seen it often in other ponds, it is difficult for me to believe this, yet in the catalogues it is not described. Can any one suggest the true name of it?

To me the most beautiful of all the hardy lilies is a so-called "Irish Loch Lily"; it always seemed to me to be a large type of *alba candidissima*, and in going through the aquatic house at Schenley Park it was labelled *N alba candidissima gigantea*, and a giant it is. When this plant was received from the grower the buds and flowers on it were enormous, but unfortunately it has not had such large flowers for me simply because my method of treatment is not correct.

Last year my efforts to grow *N. gigantea* (to me the most beautiful of all tender lilies) were not successful, and this year it looks as if the result will be the same. This lily has a bad habit of turning to a tuber when its roots are disturbed and both my efforts have failed on this account. This year I started off with a fine plant; it turned to a tuber, but an examination a few days ago revealed the fact that the tuber was starting up, and as it is early in the year my hopes may still be realized.

N. Columbiana, the new dark red, is another beautiful variety, but no red lily is much ahead, if anything, of the old standby *Devoniensis*. *N. Sturtevantii* is a grand flower and is very much admired by every one but it is a shy bloomer.

Experience has shown that it is a great mistake to have sun fish and gold fish in the same pond; that is if one wishes to increase their stock of gold fish, because the sun fish eat all the young gold fish.

Not being satisfied with the size of our lotus pond, and having made it about double the size, the next problem was would it be better to plant some new tubers in the addition or take some of the tubers out of the old part and plant them in the new. This question was settled by the lotus roots themselves spreading all over the new part very rapidly, even to the extreme end. Lotus should always be planted by themselves; my experience in trying to grow lilies in the same pond was a failure.

As to the surroundings of lily ponds, all sides of a pond save the north should have low growing plants, if any at all, as water lilies cannot get too much sun.

It is advisable to grow foliage plants on the edge of a pond rather than flowers, though some flowers look very well, still geraniums or brilliant colored flowers detract from the coloring of the lilies. Iris on the north side of a pond look very well and they flower early and make a handsome show before the lilies come.

One word of advice, which is certainly very important, and that is cover your ponds carefully in the winter.

Our ponds only have a 4½ wall and as the bottom of the pond is clay we cement right on the clay.

In some of the catalogues very heavy walls are suggested, and if the average flower lover would think of building one the cost would scare him off immediately, and from a practical experience I know such walls are unnecessary. When in the late fall or early winter the ice begins to form, the ponds are all filled up with water—level full—and a few old joists are laid across and on there old boards are put, on these boards we cover up a good thickness of leaves and cover the whole over with a few pine boughs; these look nice, being green all winter. but of course their principal use is to keep the leaves from blowing away.

It is most important that the covering extend at least 2½ to 3 feet beyond the edge of pond wall, because it is the wall that needs the protection The goldfish are always left out all winter and the four months of darkness and cold seem to do them no harm.

If people only knew what a little expense there is connected with a lily pond and what a source of delight it is there would certainly be more of them. I think it may be safely stated that no class of plants yield so many flowers for so little work, for it certainly is a fact that the more you leave them alone the better they will do.

It must also be understood that the care of a lily pond is not necessarily a man's occupation, as in our town here some of our most enthusiastic water lily growers are ladies, who give the plants all the attention they need, and they always have a very great show of flowers. ERNEST MAYER.

Beaver Falls, Pa.

AN OUT-DOOR LILY POND.

AN OUTDOOR LILY POND.

Our illustration is engraved from a photograph of a part of a water lily pond in the garden of Hon. Gardiner J. Hubbard, Twin Oaks, Washington, D. C., and was kindly sent to us by Mr. Peter Bissett, his gardiner. If you turn back to GARDENING, January 15 of this year, pages 131, 132, you will there find what Mr. Bissett has got to say about how he grows and winters his aquatics; and the little picture we now present shows his success. Such articles as that one by Mr. Bissett and the one in this issue by Mr. Mayer are the voice of many years' experience and exceedingly valuable.

There is a homey, happy feeling in that picture of aquatics that we should strive to imitate. Observe that the pond is in the full open sunshine, but at the back there is a close protection of trees from the cold winds. A strong growth of miscellaneous decorative plants—mostly hardy—also surround the margins.

Landscape Gardening.

EGANDALE.

The large trees forming the background shown in the illustration, are mainly native oaks, ash and hard maples, growing on the bank of a deep ravine. In viewing it you are looking south. This ravine forms the sou hern and w estern boundary of the lawn. In the rear (centre of the illustration) a spur of the main ravine, runs up into the lawn, and to the extreme left, back of the shrubbery, another spur again enters the tableland, thus dividing the lawn at that end into two lobes forming in the one to the right a deep bay, while the other may be termed a long tapering point. The one to the right is opened up into a clean lawn. while the other is only opened up in the centre, allowing enough indigenous trees and shrubs to remain near the sides to overbower it with foliage. As stated, this wing of table land is a narrow point; at its extreme end growing in the ravine bank some ten feet out are two old red oaks. A rustic bridge connects them with the point of land, its shape tapering towards the oaks, thus continuing the gradually narrowing in of the side lines. By bushing up here and there along the edge of this part of the table land, with bush honeysuckles, snowberries and other shrubs that will stand some shade, and grassing the open space in the centre, the eye is confined as it were within the open space and along to the narrowing bridge, so that the vision is confused and the imagination presumes a much longer distance than exists. When John Thorpe entered that part of my grounds for the first time, he at once exclaimed "What a long way for so short a distance." To give an idea of the size of the lawn as shown in the picture I will give a few measurements: The distance from the bottom of the picture to the extreme end in the lobe at the right is two hundred and sixty feet. To the small dark bushy juniper near the rear centre, is one hundred and seventy-four feet. The width across from the curved border of sedum at the right, to the first shrubbery bed at the left just beyond the yuccas is fifty-four feet. From this point, both north and south, the lawn widened out.

To the right, at the edge of the lawn is a Colorado blue spruce. It was put there to hide the margin of the lawn beyond,

THE FRONT LAWN AT EGANDALE

so as to give the impression that the lawn beyond might extend an unknown distance to the right, thus enlarging one's possessions without paying extra taxes. The new American weeping willow showing prominently to the left of the dark juniper was placed there partly to hide a portion of the bridge beyond that showed, and also to act as one side of a gateway through which the lawn is carried into the open but shady point beyond. This species was chosen because of its graceful form and the effect produced by its olive-gray foliage against the shiny dark green of the red oak leaves beyond.

Surprises are the charms of one's place. Standing on my porch one sees the view here given and imagines that he sees it all. Yet within the range of the camera as it stood, are three rustic bridges and one quite large summer house. One bridge spans the ravine spur back of the rockery, and is sunken rather than raised and not seen until almost upon it. The tall trees to the right, that produce the broken sky-line so essential for effect, belong to a group, only a few of which are shown in the picture, that come out into the lawn some twenty feet from the edge of the ravine, under which a mushroom-shaped summer house is built. A mass of tall shrubbery in front hides it from view. Back of them and in the main ravine is another bridge. To the right of this picture the lawn extends some seventy feet, forming a deep bay, bordered by the ravine which here takes a northwesterly course.

The first group, seen at the left, is a dozen *Yucca filamentosa*, nine of which are in bloom. The round headed shrub shown above the yuccas is the golden elder pinched back, in front of it is a combination of shrubs and perennials. There are three distinct shrubbery beds on the left, separated from each other by at least ten feet at the narrowest point, forming bays and promontories seen only when viewed from a point to the right of this picture. My lot on that side narrows in at the centre like the side of the letter X, making that side rather difficult to treat.

The shrubbery beds contain shrubs, small trees and hardy perennials, whose flowers and foliage are attractive all the season, so arranged that in each bed, at all seasons, some flowers are conspicuous. All the perennials are planted in masses, and in some instances so are the shrubs.

The street which borders the left of my lawn has a southerly course until it reaches a point opposite the golden elder, when it turns sharply southeast. If it continued on it would run into and include the narrow wooded point before mentioned. To make this point more secluded from public view, as it could be looked into from the street, I planted rather thickly tall flowering trees and shrubs, such as *Rhus semi-alata* var. *Osbeckii*, *Philadelphus coronarius* and viburnums, seen in the picture beyond the elder.

In these beds, in addition to the hardy perennials, and in groups of a dozen or more are *Liliums Batemanie*, *Canadense*, *umbellatum*, *elegans*, *Parryi*, *superbum*, *Wallacei*, *Hansoni*, *Krameri*, *pardalinum*, *candidum*, *Wallichianum superbum*, the double tiger lily and *L. auratum*.

Rosa Wichuraiana carpets the ground in some places and *Clematis Jackmanni* in its forms rambles at will in the open headed trees. Tritomas in quantity brighten some open spaces in the fall months, and there are a few gladiolus among them giving earlier bloom. In the last bed in that portion where it almost joins the wild shrubbery of the ravine I allow *Clematis Vitalba*, *C. Flammula* and the Allegheny mountain fringe (*Adlumia cirrhosa*) to clamber over the tops of strong shrubs, such as the button-bush (*Cephalanthus occidentalis*), cutting back a little if too rampant. In this semi shady spot *Senecio Japonica*, the meadow sweet and the monk's-hood thrive.

The first individual tree on the lawn seen after leaving the shrubbery belt is the American weeping willow illustrated in GARDENING, May 1, page 243. In this I allow a *Clematis Jackmanni* to ramble at will in among the foliage. When in bloom the flowers seem in a mist and always invite close inspection. The vine is planted four feet out from the bole of the tree, and being light in texture and cut down each season it does not injure the tree. Back of it is a *Populus Bolleana* in which climbs a *Clematis coccinea*, draping the downy leaves with coral bells.

Then comes the rockery which is at the head of the spur of the ravine before mentioned. In front of that rockery and some fifteen feet from it, is a large boulder partially covered with Boston ivy. I keep a young plant at this stone and only protect the roots in winter, allowing the top to freeze, as I desire the stone only partly covered. If all were covered it would present a meaningless mass of green, but in showing part of this granite boulder, it is pleasing. This stone was placed there to hide a water tap and as an outlier of the rockery. Near it is a handsome native red cedar (*Juniperus Virginiana*) taken from the woods on account of its handsome bushy form. Its dark foliage emphasizes the point of the sub-ravine as it comes out into the lawn and hides the margin of the lawn on the left as the Colorado spruce does on the right. The rockery was placed at this point because the same cause that threw this spur into the lawn may have produced an outcrop of stone there. Notwithstanding the fact that in the rockery such plants as *Agave Americana* and *Dracæna indivisa*, not safe to put out until June, are used, it is so planted with hardy material that as seen from a distance these tender plants are not missed when absent.

The native trees at the end to the right of the rockery standing at the extreme edge of the lawn are hard maple, which

color elegantly in the fall. Coming towards us on the right is the Colorado blue spruce (*Picea pungens glauca*), then a large rhododendron "The Queen" that has to be wintered in a cellar. Next is a clump of the variegated *Eulalia Japonica*, then a tree pæony that has a box placed over it in winter.

This brings us to the first large bed shown at the right. I mentioned before that each bed was so planted that the bloom and foliage were attractive the season through. In this bed is used *Prunus Pissardii*, the purple plum, *Cornus Mas*—the variegated dogwood—that needs some protection in winter, and the golden elder. These give color effect all along. Although this coloring is not sanctioned by extremists, it is approved by many. For flowers among the shrubs used, commencing early we have *Azalea mollis*, the purple plum, bush honeysuckles, *Spiræa van Houttei*, European thorn and cornus, and soon will bloom the *Clethra alnifolia*. *Robinia hispida* is long past and *Hypericum aureum* and *H. Kalmianum*, with the *Potentilla fruticosa* are now in full glory. A group of columbines among the perennials opens the season, followed by the foxgloves, whose season is long, then the Canterbury bells enliven the scene until their place is occupied by pot plants of the giant tobacco and castor bean, plants which do well in this sheltered spot. In the meantime *Lychnis flos-cuculi* and *Pyrethrum roseum* have had their say and European daisies (*Bellis perennis*) carpeted the ground under a canopy of *Lilium candidum* blooms, some of which came up through the foliage of *Prunus maritima*, which was a sheet of white in May. The purple barberry has bloomed as well as the *Kalmia latifolia* and some dwarfed catalpas bring us to the season of perennial phloxes whose early bloomers are on the wane, but many of the rear guard are still to come. Opening with them is a group of *Pentstemon gloxinioides* and later on the tall chimney campanulas (*C. pyramidalis*) which have been retarded so now that by their shaded position will carry the season of blooms until frost. A pleasing border is necessary in many cases, and the perennial phlox needs one on account of its habit of sometimes losing its lower leaves. In this case I use *Sedum spectabile*, which in the picture looks like a low hedge. Its glaucous foliage blends quietly with the color of the grass, and its neat compact habit harmonizes with the close shaven lawn. It will bloom later on and present a sheet of pink from the grass up. In no part of my grounds do I repeat the same flower, and the list to choose from is so large that each bed can carry as extended a floral calendar as the one just mentioned.

The lawn is largely white clover, which on our clay soil succeeds well. It is cut once a week, the knives set so as to just miss the clover leaves, which act like diminutive umbrellas to protect their roots. On each cutting day the sprinkler follows the mower and a good soaking given. Any spot showing the effects of drouth at any time is given a good wetting down.

W. C. Egan.

Highland Park, near Chicago, July 21, '96.

THE WILD GARDEN.

One has only to leave the highways and traverse the byways of this and doubtless other states to see some of the most exquisite wild gardening, and what is beautiful and right in nature cannot be wrong in art, therefore why have all our grass so clean shaven, and the home surroundings so painfully prim and flowerless? At least one instance is forthcoming of the existence of a garden of a contrary character. A correspondent writing to the London *Garden* from Bar Harbor, Maine, tells of the floral riches of his place; of the long succession of seasonable flowers from the time the dwarf cornel spreads out its white carpet in spring till the golden rod in all its autumn glory heralds the approach of winter, and concludes by saying "Flower garden we have none, but our flowers are scattered about wherever the soil is deep enough and the spot sheltered from high winds."

I lately made my first acquaintance with lilies truly wild. Can you conceive or create a lovelier garden picture than a meadow full of *Lilium canadense*, its tall slender stems thrust boldly up above the long grass and the nodding flowers commingled with the feathery plumes of the tall meadow rue (thalictrum). On July 4 I saw acres of such a combination. No word description could do justice to such a delightful flower display, but must contrast it with some of our so-called flower gardening and see where true beauty lies. One plant to one place is too much the rule in gardens, with many suitable places minus plants or flowers at all. Again in quite a number of places recently I have seen one of the day lilies (*Hemerocallis fulva*) growing as though wild by the roadside, some masses covering twelve to twenty square yards and resplendent with a thousand blossoms. Here is another fine object lesson, for this plant is not a true native but an escape from gardens, though never under cultivation with its limiting restrictions have I seen this flower so beautiful as it has been in a dozen or more wild weedy places about Madison and the adjoining district, a striking instance of the "survival of the fittest" and the fittest in this case the most beautiful. I might continue to enumerate other instances where beauty has originated by accident, or suggest possibilities in the way of naturalizing flowers to an indefinite extent, but enough has I think been said in this and the preceding articles to prove that the wild garden is not a weedy wilderness, but may be a thing of beauty and a joy throughout the year if planted with spring, summer and autumn flowers. The garnered plant riches of the world at our hands to-day make up an enormous amount of material for beautifying the garden, and some perforce we must neglect for want of scope, but there is room for more detail in the garden picture of a more or less permanent character and an opportunity to realize much in the wild garden. Nature has favored localized spots and spread out her floral gems in lavish profusion. We in the garden have a localized area in hand and given the knowledge of available things should easily create pictures of loveliness surpassing by far the choice result of nature's work. It can be done by working along the lines laid down before us, reading from the book of nature always open and before our eyes.

Madison, N. J. A. Herrington.

JUDGE MELLON'S RESIDENCE, PITTSBURG.

Our illustration, engraved from a photograph, gives a front or street view of one of the cosiest and prettiest of Pittsburg's suburban residences; it is the home of Judge Mellon. The house is a quiet, roomy, substantial, old-fashioned structure, whose very look means comfort. The grounds are not elaborate at all, in fact they are quite plain, at the same time they display a sense of quiet, refined taste many of his neighbors might study with profit. Neither roads nor walks cut up the spread of grass between the house and the street, and there is no dotting about of flower beds or trees in the middle of the lawn. The trees are thrown to the sides, and the roads are there too. A hedge has been planted along the street line inside the fence row to give further privacy to the home. Roses and other flowers are grown at the flanks and toward the back of the house.

Admitting all of these good points we cannot help noting that if we owned that place the first thing we would do would be to cut down that big old spruce tree that stands in front of the house, and also another old evergreen a little to the right. And probably we would introduce a few new fangled notions in the way of a greater variety of showy hardy shrubs to the right and left, likewise some yuccas and perennials, but we would not in any way disturb the general openness and contour of the grounds. We passed by there the other day and stopped to have a good look at the place and enjoy it.

There is a fine specimen of purple beech at the right hand corner, and an unusually fine plant of box, it is the large almost spherical shrub at the right up near the house, and is pretty good testimony that the box is one of the best evergreens for our smoky city.

Book on Landscape Gardening.—E. H. W. Portland, Conn., asks: "What would be a good book for me to get in order to study elementary landscape gardening? I haven't the time to go into it elaborately, so want something concise, and not too much advanced." *Ans.* There is no such a book so far as we know; good books on landscape gardening go into the subject deeply, and really they are the safest to study. You know we have a vast amount of rubbish in garden literature, and it isn't what to recommend to you so much as what to keep out of your reach that would concern us. Get Long's "Landscape Gardening," 50 cents, or Parsons' "Landscape Gardening," $3.50; both are of recent date and by practical, tasteful men, and can be had from our Chicago office.

Trees and Shrubs.

TREES AND SHRUBS IN BLOOM AND FRUIT.

We have lately had heavy and copious rains, so that our local drouth has been broken, and parched grass and wilting shrubs are now relieved.

The chaste shrub (*Vitex agnus-castus*) is in full bloom; it has large terminal panicles of flowers varying from blue to white, and it is about the showiest shrub in bloom with us at present. It is a native of the south of Europe and the north of Africa, and is consequently not hardy here. We mulch it heavily with leaves throughout the winter, and grow it in tolerably dry soil. It always kills back severely, but starts vigorously into growth again, and as it flowers on the wood of the current year, it always produces a crop of flowers. *Vitex incisa*, a native of China, has larger panicles of blush purple flowers than the last named, and is now coming into bloom. The lower leaves of this species are incised or cut. This plant appears to be hardier than the other species.

JUDGE MELLON'S HOME, NEGLEY AVENUE, PITISBURG

Hydrangea arborescens glauca with large flattish corymbs of fertile flowers and a few sterile ones around the outside, has been in bloom for some time. *H. urticifolia* with distinctly nettle-like foliage and with all fertile flowers is also in good bloom. *H. Thunbergii*, with cymes of rose-blue flowers, fertile ones in the centre and sterile ones on an outer band is also coming into bloom.

Rose of Sharon (*Hibiscus Syriacus*) is displaying its floral abundance. Its different varieties run into red, purple and white. The variety *totus albus* is single and pure white and the best of all.

All the forms are free-growing and free-flowering shrubs, and as they bloom at a time when flowering shrubs are scarce, they are very desirable. We always cut them hard back as we would a hydrangea in winter or early spring, and this produces finer flowers.

Jasminum officinale has been producing its small white flowers for the past month. Trumpet vine (*Tecoma radicans*) has been flowering profusely for some time. *T. grandiflora* with a broad, open corolla, and very handsome flowers is also in good bloom; it stood the severity of the past winter here in the open ground fairly well. *Calycanthus occidentalis* with large red scentless blooms is in flower and a few flowers are still to be found on *Calycanthus floridus*.

The Cornish heath (*Erica vagans*) is blooming very sparingly. The flowers are pale red, and would be showy if only produced more abundantly.

The late blooming spiræas are now on the wane. The following are sho ing a few scattering blooms: *S. Bumalda*, *S. revireseens*, *S. conspicua*, *S. tenuissima*, *S. Douglasii*, *S. salicifolia*, *S. callosa alba* and *S. Lemneana*. If the decayed flowers are cut off, *S. Bumalda*, when it has produced its first crop (indeed they should be cut off of all the late flowering spiræas) it will give a good second crop.

Kerria Japonica is giving us a second crop of blossoms. *Rosa Caroliniana* (the swamp rose) is in full flower in the swamps. *R. rugosa* continues to give a few scattering blooms, and the large bright red hips are now attractive. *Pavia macrostachya* has passed out of bloom, and so has *Yucca filamentosa*; for some reason or other the yucca flowered very sparingly this year.

The Ginnala maple looks pretty loaded with its brownish red key fruits. *Rhus semi-alata*, with showy white panicles, is in full bloom, and the dwarf sumach *R. copallina*, with large bunches of yellow flowers is now conspicuously in flower. The smooth sumach, *R. glabra*, with its plumes of downy crimson fruit, although familiar to our eyes everywhere, is none the less pretty just now.

We don't remember to have seen *Wistaria Sinensis* give such an abundant second crop of flowers as it has done this summer, and the rosa acacia (*Robinia hispida*) is giving a good crop of bloom just now. *Indigofera Dosua*, a small pea flowering shrub from India, with purplish red flowers, has been in bloom since two weeks. It kills back a little in winter.

The European honeysuckle (*Lonicera Periclymenum*) is again in bloom, *L. sempervirens* is still blooming quite freely and *L. Halleana* is in good bloom. The different forms of the bush honeysuckles, *L. bella* and *L. Tartarica* are quite handsome, with their red and yellow fruit. *L. Orientalis*, a bushy species whose flowers are very inconspicuous, is now showing black fruit, but not in any way attractive.

The pepper bush, *Clethra alnifolia*, with racemes of pretty white fragrant flowers is very showy. This is an excellent shrub for amateurs to grow, as it never fails to flower freely, and it does not appear to be capricious as regards soil or location.

The snowberry bush (*Symphoricarpus racemosus*) is commencing to show its white fruit; *S. mollis* has been in bloom since two weeks, *S. vulgaris* (coral berry) is coming into bloom. *Buddleia curviflora* having purplish spikes of flowers but no particular merit in its favor, has been blooming since three weeks.

Callicarpa purpurea with small insignificant flowers is now in bloom. The violet colored berries which follow are very pretty, but they hardly ever get a chance to develop with us here. We saw the fruit in remarkably good condition in Washington last year. The button bush (*Cephalanthus occidentalis*) a common native of the swamps, with globular heads of white flowers, has been in bloom since two weeks. It surprises a good many people to see it growing with us on the top of a dryish knoll with remarkable vigor.

Hypericum elatum and *H. hircinum* have been in bloom since three weeks and are now about past. *H densiflorum H. prolificum*, *H. aureum* and *H. Kalmianum* in different stages of flowering are all now in bloom.

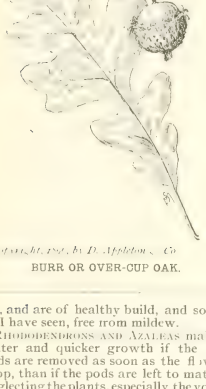
The Cornelian cherry (*Cornus Mascula*) with its red, handsome large fruit is beginning to look showy. The round-leaved dogwood (*C. circinata*) and the alternate leaved dogwood (*C. alternifolius*) with bluish fruit are ripening, and *Viburnum Lantana*, with fruit first red and afterwards black, is now quite conspicuous. The high bush cranberry (*Viburnum Opulus*) with bunches of red fruit is showy. *V. dentatum* with round black fruit, and *V. Lentago* with oval shaped berries which have hardly yet commenced to turn black will add to the general display of shrubs with showy fruit. *V. lantanoides* has fruit somewhat like *V. Lantana*, that is first reddish and afterwards

black, and is commencing to turn showy. The fruit of the European and American mountain ashes is commencing to turn red. The chokeberry (*Pyrus arbutifolia*) with purplish fruit, and the variety *P. a. melanocarpa* with jet black fruit have been ripe since two weeks. The choke cherry with its branches of dark crimson fruit, abundant everywhere, is very showy and the wild red cherry, *Prunus Pennsylvanica*, with small red fruit is turning ripe. The dwarf plum (*Prunus pumila*) with quite showy black fruit has been ripe since two or three weeks. This shrubby plum grows naturally in sandy banks; it is growing here in the face of a filled in sand bank and is doing remarkably well. JOHN DUNBAR.

Highland Park, Rochester, N. Y., July 27, 1896.

NOTES ON TREES AND SHRUBS.

THREE FINE LILACS are *Syringa Pekinensis*, its variety *pendula* and *S. Japonica*. They bloom later than the other lilacs, have great panicles of fleecy white flowers, and are of healthy build, and so far as I have seen, free from mildew.



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BURR OR OVER-CUP OAK.

RHODODENDRONS AND AZALEAS make a better and quicker growth if the seed pods are removed as soon as the flowers drop, than if the pods are left to mature. Neglecting the plants, especially the young ones, in this direction is bad gardening.

TRANSPLANTING RHODODENDRONS.—Although the weather is wet enough now it was very dry on Long Island in the spring, but dry as it was we transplanted a large lot of rhododendrons in the open fields, and with excellent success. This was caused no doubt by careful lifting, and early and careful planting, and mudding the roots at lifting time to preserve them from getting dry. This mudding or puddling the roots at planting time will save most plants, deciduous as well as evergreen, and people should bear it in mind.

TREES AND SHRUBS FLOWERED MUCH EARLIER THIS YEAR than usual, rhododendrons and azaleas were at least a week earlier than I remember them to do before in forty years, and they were superb. Even the always late *Rhododendron maximum* and *Azalea arborescens* were also proportionately early, and very fine and full. H. P. and moss roses that used to flower in June, began to bloom in May, and shrubs the same. A number of spiræas and other early shrubs did poorly, no doubt owing to last fall's long drouth.

THE NEW SPIRÆA, Anthony Waterer, is good, being a shade darker in the color of flower than the old Bumalda.

OF CEDRUS ATLANTICA ARGENTEA I grafted a lot the middle of April, and the cions have knit finely and the grafts are doing well. What a splendid tree it is! It is the finest of blue conifers, and the Dosoris specimen is the finest I know of in the country.

BERBERIS THUNBERGII as an ornamental hedge plant is not surpassed by any other small-sized shrub that we have got. Its habit is excellent, it never needs cutting or pruning, it starts into full foliage early in spring, and its leaves last late and color brilliantly in the fall; it bears vivid scarlet fruit in dense arching sprays, and these berries last on the plants all winter and till the new growth comes in the following spring. And the plant is hardy and will grow anywhere.

J. R. TRUMPY.

Kissena, Flushing, L. I.

ORNAMENTAL TREES AND SHRUBS FOR SOUTH DAKOTA.

Prof. N. E. Hansen writing in the *Dakota Farmer* names the following seven as the best ornamental trees for lawns and shade in his part of the country:

SHADE TREES.

Cut-leaved weeping birch
Colorado blue or silver spruce.
Russian wild olive (*Elæagnus angustifolia*).
The May Day Tree (*Prunus Padus Maackii*).
Hard maple.
Dwarf Tartarian maple (*Acer Tartarica Ginnala*).
Bolle's poplar (*Populus Bolleana*).

ORNAMENTAL SHRUBS.

Lilacs.
American snowball.
Hydrangea paniculata grandiflora.
Rosa rugosa.
Spiræa Van Houttei.
Mock orange, especially Gordon's (*Philadelphus Gordonianus*), and the large flowered syringa (*P. grandiflorus*).
Lonicera splendens, a form of Tartarian bush honeysuckle with bluish green foliage, dense habit and heavy load of pink flowers in May.
Tamarix Amurensis.
Chinese barberry (*Berberis Thunbergii*).

Let us quote in full what he says about the May Day tree. "An ornamental bird cherry from the Amur valley of Asia. A beautiful lawn tree of medium size with neatly rounded spreading top and dense foliage, blooms early in May. The pure white flowers are in long racemes and last a long time in water. The tree is in full leaf very early in the spring and retains the foliage late in the fall." We endorse every word of it. It is very hardy, free growing, and when in bloom most beautiful, its flowers being the largest of all the bird cherry trees. It among trees and *Spiræa sorbifolia* among shrubs are among the earliest in their line to start into leaf growth in spring. There is a splendid specimen of this tree at Dosoris.

AMERICAN BLADDER NUT.

Under separate cover I send for name, leaves and seed pod of a bush or small tree which grows along the streams in this vicinity, although not very common. They are now a beautiful sight, covered with hundreds of these three-celled bladders hanging in clusters. I must have a number in my shrubbery collection. Have planted the seeds, will they grow? Since I have been gardening for pleasure have discovered a number of handsome wild shrubs, however, nearly all are so difficult to transplant from their native haunts that I prefer nursery grown stock. Oh! the failures that have fallen to my lot have been numerous. Have taken GARDENING for more than a year and the practical suggestions in it have already saved me the subscription price ten times over. O. G. B.

Frankfort Springs, Pa.

The shrub is the common bladder-nut (*Staphylea trifolia*). It belongs to the soapberry family of plants, the same to which the horse chestnut and maple belong, has opposite pinnate leaves of three serrate leaflets, and drooping clusters of white flowers terminating the branchlets and succeeded by large, three-celled, inflated pods. The shrubs are of upright growth six to twelve feet high, and occur in a wild state in thickets in somewhat moist soil. Grows well in cultivation. Yes, it grows from seed, also from cuttings. The best one for garden purposes is *Staphylea colchica*, it has very pretty waxy white flowers in clusters and is a fine ornamental shrub.

FAMILIAR TREES AND THEIR LEAVES.

This is the title of a very beautifully gotten up book by Mr. F. Schuyler Mathews, and published by D. Appleton & Company, New York. The book is 8x5 inches and contains 320 pages, and over two hundred illustrations. The object of the book is to teach us how to distinguish our common trees, both wild and cultivated, by their leaves. The another is an excellent artist, a sharp observer, and good botanist, and all of this is firmly impressed upon his work. The drawings are original and made from nature by the author himself. How excellent and truthful they are can be readily seen by examining those of the burr oak, swamp magnolia, and buttonwood herewith shown, and which have been kindly lent to us by the publishers, Messrs. Appleton. All of the trees illustrated also several more, are freely and very interestingly described in the work, and where they occur in a wild state, also where fine specimens of them may be seen in cultivation, and what they are good for. The common English names of all are given in bold type, and the botanical ones in italics, and a new departure in botanical book making is here observed; while the botanical names used in the last

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MAGNOLIA GLAUCA.

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AMERICAN BUTTONWOOD (*Platanus occidentalis.*)

edition of Gray's Field, Forest and Garden Botany are given as the accepted ones, when this name differs from that given by Prof. C. S. Sargent in his monumental work The Silva of North America, Prof. Sargent's name is given too. There is a capital systematical index, and also an index to the names of all of the places referred to in the work. Altogether it is an excellent, useful, helpful, authoritative and popular book, and we heartily recommend it to our readers.

JAPAN MAPLES IN ILLINOIS.

M. B. L., Princeton, Ill., asks if Japan maples would prove hardy with her.

These maples cannot be grown successfully at Chicago. They will live a few years, but do not thrive. I imagine that our lake winds especially in winter and spring are against them. I think that some of the more robust forms would do well in Princeton if planted in a rather sheltered place, and artificial watering withheld after the middle of August in order to induce early ripening of the new wood. The following varieties from the Parsons & Son's exhibit at the World's Fair, bought by the Lincoln Park Commissioners looked fairly well after passing two winters there. *Acer Japonicum, A. J. macranthum, A. J. microphyllum.* The enquirer probably refers to the smaller, more shrubby forms, known as *Acer polymorphum.* Of this species the following varieties seemed to do the best during my trial of them, namely, *Atropurpureum, dissectum atropurpureum* and *sanguineum.* I think that *Acer Japonicum palmatum,* belonging more to the tree form, will do well. W. C. EGAN.

A HEDGE PLANT.

In answer to the question about "A Hedge Plant" by H. K. S. of Middle Lancaster, Pa., let me suggest the Japanese barberry (*Berberis Thunbergii*). The reader has grown it very satisfactorily. The *Berberis Thunbergii* does not grow higher than three or four feet, never has to be cut back, grows in any common soil, is perfectly hardy and will stand the sun without any shade. It has pretty tiny flowers in spring, the leaves turn crimson, orange, bronze and green in late autumn, and there are scarlet crimson berries. The reader has hers surrounding her garden, where it is exposed to the severe northwest winds of winter, with no protection, and it has stood the test splendidly. [It is is one of the best shrubs ever introduced to this country, and admirable for low broad-headed hedges. We have a thousand plants of it in our nursery ready for planting in the park.—ED.] C. A. B.

Taunton, Mass.

The Flower Garden.

THE FLOWER GARDEN.

Bedding plants should be in their finest condition. Keep them within bounds and neatly in their rows, panels or patterns; don't let the leaves of the different lines run into each other, nor allow carpeting plants to grow up over the agaves, cacti and other plants of that nature stuck in among them. If one plant grows higher than the others pinch it in, in fact coleus, alternantheras, stevia, santolina and all plants of that nature must be kept to a set height, else the beds will look unkempt and reflect discredit upon yourself. Bedding plants and formal bedding are all proper enough in the right place, but confine them to that place, and if you have these beds be sure you keep them trim. Wherever a plant dies out and leaves a gap fill up the gap at once. Go over the cannas every few days and pick off the old flowers. Have the dahlias securely staked. Cut over the old hollyhocks for neatness' sake. Save seeds of the best varieties and sow them at once. We raised a lot of hollyhocks, campanulas of various sorts, columbines, delphiniums, foxgloves and other perennials from seed in frames a couple of months ago, and these are nice plants two to four inches high now, so we are planting them out now, some permanently, others provisionally in beds or nursery rows. Those in rows are columbines, delphiniums, coreopsis, several bellflowers and others that are hardy enough to need no protection in winter; we can lift and transplant them permanently any time we find it convenient to do so. Those in rows in beds are foxgloves, Canterbury bells, hollyhocks, chimney campanulas, polyanthuses, "hardy" carnations, etc., that are benefited by a good mulching in winter; we shall transplant them in spring.

Our perennial phloxes were a good deal mixed, but now that they are in bloom we have lifted all of a kind and planted them together; on account of the wet weather and lifting with good balls they have stood this transplanting first rate, and are blooming as if nothing had happened. As we wanted to get up a big lot of moss pink (*Phlox subulata*) we lifted, divided and transplanted all of our old stock in spring; the settings were a foot apart; they have now grown enough to nearly meet and are throwing out young roots from the branches; about the end of August we will lift and divide them again, this time planting closer, and we shall mulch the plants with some branches in winter. They should make fine stock for setting out next spring.

The cardinal flower is splendid just now. One of our prettiest combinations is the swamp rose mallow (*Hibiscus moscheutos*) interplanted along the front with cardinal flower. Both are marsh plants, still these are growing on a hill side.

Now is a capital time to sow the seeds of all kinds of hardy perennials either out of doors or in frames, and of course if the seed is of this summer's crop so much the better; it will germinate the readier. In fact a capital way to get up a lot of perennials easily is to let some of the finest hollyhocks, delphiniums, columbines, coreopsis and the like ripen and scatter their seed on the ground, and clear away overhanging and neighboring plants to let the seedlings come up sturdily. Lift these seedlings and transplant them thickly

into beds; they are just as good as if you raised them in the greenhouse.

Lots of early sown annuals, as Drummond phlox, mignonette, Drummond coreopsis, candytuft and the like, will now be nearly over, but if we made provision with zinnias, China asters, nasturtiums and marigolds to fill their places we can keep our gardens gay till frost comes.

FLOWER GARDEN NOTES.

ECHINOPS COMMUTATUS (*exaltatus*). This giant thistle is more curious than showy or handsome. A root planted in April has grown some five or six feet, with a bunch of some twelve or fifteen round balls of small lavender flowers at the top. The leaves are exactly those of a thistle, and the plant attracts attention because it is seldom seen in gardens (at least out my way). It is not troubled with insects, but what is worse the leaves gradually get yellow from the bottom up. Is this usual or is it because the treatment has not been right? [Yes, it is the rule, especially after the plants begin blooming.—ED.] Does it need moisture or dryness? [We have found that it does very well in common garden soil, deep, rich, and not over moist.—ED.] I had an *Echinops Ritro*, but being received from the nursery when the thermometer was 94°, it died "on me," as our Hibernian friends say. I am told that it is finer than *E. exaltatus*.

STROBILANTHES DYERIANUS I had intended planting this in quantities, with other things, in a show bed, but was informed by floral experts that it soon became washy and lady looking. I am glad I did not use them for a show bed, as the plant is rather sombre looking, in my estimation, for such a purpose, but the few plants I have scattered about have not failed to elicit admiration on account of the exceeding richness of coloring and the metallic lustre, which is something rarely met with. Neither do I find that so far they have become at all weedy or washy looking. Insects do not bother them, and they seem to do well under almost any ordinary conditions.

SWEET PEA CUPID again. A writer in the *American Florist* says, "this is likely to be a useful plant and bears out in every respect the descriptions given of it." I am glad to hear that somebody has succeeded with it, as I had begun to consider it one of the worst "fakes" ever practiced upon a too confiding floral public. Many I know have failed to get seed to germinate under any conditions, in pots or open ground, in dry or moist soil. Some have got a few seeds to germinate, only to find that the plants had no vitality, and gradually gave up the ghost. My six plants out of 30 seeds are coming along slowly, oh, so slowly. One plant has attained a length (I cannot say height,) of at least 3 or 4 inches, and has some buds on it. Instead of growing upright and bushy, the plant has three stalks, which spread out just like crab grass, flat on the ground. And yet they have had the most delicate care, coddlin' and judicious feeding.

SWEET PEA BEDS OF NIAGARA. If this is the result of trying to improve, by doubling, the unimprovable, better would it have been to leave the graceful single sweet pea alone. [You are right, doubling the sweet pea is spoiling it, so is doubling the pansy. Doubling flowers is sometimes an advantage so far as their usefulness as cut flowers goes, the double flower lasting much longer that the single one, but in the case of the sweet pea, this does not hold, for the single flower lasts as long as the color keeps pure; besides, doubling butchers the beauty of the blossom.—ED.] Still, anything goes, as long as it is a "novelty."

ROOTS OF TREES. After a large tree is cut down, how long do the roots continue to feed? I had a large maple cut down some three years ago, and yet this year some sprouts are coming up around the base of the trunk. And how about the roots of an arbor-vitæ hedge cut down in April? Are they feeding still? [Although the arbor-vitæ roots are alive their mission in life is over. Latent eyes on the stout roots will not burst into upright growth, they will die at the end of the season. In the case of many deciduous trees, however, the roots will continue to live and persistently throw up sprouts for two or three years or more after the old tree has been cut down; common examples of this may be found in the yellow locust and the trumpet creeper, from old plants of either, cut to the ground, suckers or root sprouts, will continue to spring up for some years afterward.—ED.]

L. C. L. JORDAN.

Bergen Point, N. J. July 10, '96.

NOTES FROM AN IOWA GARDEN.

SUB-IRRIGATION FOR NEWLY PLANTED TREES.

The last few years were very dry here and we found difficulty in transplanting large trees and shrubs in safety and keeping them alive. In 1893 we lost a number notwithstanding the fact that they were well watered from the surface of the ground and mulched as well. In the spring of '94 we planted 35 quite large trees and shrubs in clay land, and when we were planting them we set from one to three 4-inch drain tiles on end and with upper end on surface of the ground, in each hole, and these tiles were filled full with water every evening, we also sprayed the trees all over twice a day from a hose. The surface of the soil was dry and kept loose, and no mulching was used. Every tree so treated lived and made some growth.

IRON VASES, HOW TO TREAT THEM.—One of the lessons taught me by the past three dry summers is that when we fill vases made of iron for outdoor decoration we must line them with thin wood, if not the sun shining on the iron will make it so hot that it will bake the soil and burn the roots. The difference between the plants as grown in lined and unlined vases is so great and so much in favor of the lined vases, that we line every iron vase we now fill with plants.

HYDRANGEA AND SALVIA IN ONE BED.—Although I don't like mixing up shrubbery and bedding plants together in formal beds I was very well pleased with the effect produced by the above combination a year ago. We had a 20 foot wide circular bed filled with *Hydrangea paniculata grandiflora* and bordered with dwarf form of *Salvia splendens* pinched back, and it was a fine sight. The hydrangea plants were cut back to two eyes, and the ground was heavily enriched with manure in spring, and abundantly watered in summer, and the heads of bloom they made were immense.

A BED OF DWARF SPIRÆA.—One of the most novel flower beds I saw last year was a large circular one planted with *Spiræa Bumalda* and bordered with *Spiræa callosa alba*. Both are dwarf shrubs and perfectly hardy here. The mass of pink flowers in the middle and the border of white had a very pleasing effect, the plants were so full of bloom one could hardly see the foliage, and they last long in flower.

A COLORED SHRUBBERY BED.—I have a 24 foot wide bed filled with a few *Elæagnus hortensis* (silvery) in the center, outside of that the crimson-purple *Prunus Pissardii*, and bordered with Buist's variegated althæa, the plants are set out 2½ feet apart, and kept cut down to 2 to 2½ feet. To relieve the stiff even effect, I planted some of the white flowered *Cleome pungens* among them, and its graceful white flowers waving over the solid bed of color relieves it greatly. I am afraid that my good friends William MacMillan, Warren Manning, and the editor may discipline me for violating the landscape laws of ethics in color, but the people must have novelty.

GAURA LINDHEIMERI is a herbaceous perennial plant indigenous in Texas, hardy in sheltered sandy lands as far north as New York, but not hardy here in Iowa. It is very easily grown from seed, however, or from cuttings, indeed we usually raise it from seed every year, treating it as an annual in much the same way as we do vinca, nierembergia, and other perennials that come into bloom early in the first season. The principal use we make of it is to plant in geranium beds to relieve their glare, and in coleus beds to lighten their stiffness and monotony. The gaura grows twelve to fifteen inches high and throws up long, slender arching wands scattered over with light airy, blush or white blossoms that flutter over the coleuses or geraniums like hovering butterflies. It has an elegant effect. We also use it in quantity in filling vases.

EUPHORBIA COROLLATA, commonly called creepng milkweed, is another hardy herbaceous perennial that answers admirably for the same end for which we use the gaura. It is perfectly hardy here, indeed it grows wild hereabout, and over a wide range of the northern states, but its habit is stiffer than that of the gaura. It can be increased by division, or from seed, or we can gather a lot of the wild plants.

JOHN T. TEMPLE.

Davenport, Iowa.

DISEASED CHINA ASTERS.

For the last two years the China asters in my garden are curiously affected. After transplanting, the plants seem to grow well for a few weeks, and then suddenly a considerable proportion are stricken with a kind of blight, which results first in the withering of the leaves, and soon afterwards, say in the course of a week, the absolute destruction of the plant. I have raised asters in the same place for several successive years. Last year I suspected that when I fertilized the soil I might perhaps have introduced some destructive element and that my plants suffered in consequence. I therefore removed the original soil and filled up the space with fresh earth from the prairies. This summer the aster plants are affected quite as unfavorably as they were last year, hence I conclude that the manure which I used is not the cause of the difficulty. Possibly the difficulty may result from a pear tree that is located in one corner of the bed in which the aster plants are placed. This tree showed signs of blight last year, and the blighted portions were removed. The tree, however, now seems to be healthy and no further occasion for removal has existed.

Chicago. F. P. C.

The pear tree blight has nothing to do, we believe, with the aster disease; too much shade, and dryness and an impover-

ished soil, all enervating to the asters, may be laid at its door, however. While we have grown China asters several successive years in the same ground, freely fertilizing it each year, we had good proof that it is poor policy, asters want a change of soil We believe your plants are affected by some of the aster diseases. You should go out to South Park and see Mr. Kanst, the gardener there, and consult with him about the matter. A year or two ago when we were there last he had a lot of asters in his frame ground, and in answer to our inquiry why he didn't plant them out he replied when planted, on account of the disease so many gaps occurred in the beds that he ceased to use them in that way, and now grew them in his frame ground for cut flowers only.

NOTES ON GARDEN ANNUALS.

The hardy annuals are now making quite a show in the gardens. We are growing about two hundred and fifty distinct varieties of them here, having raised them all from seed this spring and on an average fifty plants of each variety. The ten week stocks were very fine. Mont Blanc had spikes twenty-two inches long and of a pure white color, Princess Alice was another good white, and Princess May a lovely yellow. Dwarf Bouquet was one of the best we had; the plant is compact and it flowers very free, making a nice pot as well as outdoor plant.

The marigolds are quite gay. Legion of Honor and Queen of Dwarfs are two of the best dwarf ones. The tall striped and the miniature striped and blotched are the best ones. The dwarf orange and lemon are the best amongst the African sorts.

Calendula officinalis, Meteor and Prince of Orange, are two good, very free flowering plants and last all summer long. *Calendula pluvialis* (Cape marigold) is quite different from the other ones, it has white and purple flowers something like a marguerite, and it flowers very freely. Although well worth growing for garden decoration it is of no use for cut flowers, the blossoms shut up so soon after being cut.

We grow a great many antirrhinums; they are very free flowering plants and it is a wonder they are not more grown; about the only place I ever saw them was at Dosoris. The tall ones grow about three feet high, and the intermediate ones only about a foot high. Grandiflorum is a good tall one. A paper of mixed seed will gives you a great variety of colors. We also grow Sutton's Rosy Morn and white throated and think so well of them that we grow more of them in the garden than of any other annual.

Phlox Drummondii grandiflora makes a good show, growing about a foot high, and giving us many colors. Snowball is a nice dwarf white only six inches high and Fireball is much the same only the flowers are red, but because of their shortness these two last are no good for cutting; the tall ones however are one of the best cut flowers we have. Zinnias are now in good flower and will last till frost; the scarlet ones are the most showy and when grown in a mass they are very brilliant.

What a show *Dianthus laciniatus* makes; mixed seed gives a great variety of color, our plants are fairly hidden with flower. *D. imperialis* is a good double; so is the double white and double crimson. Salmon Queen is also a nice one with pink flowers, and Rosy Morn has rose colored ones, The Bride is a fine white.

Venidium calendulaceum is a very free flowering annual with orange colored calendula-like flowers, it grows about nine inches high. *Coreopsis coronata* and *C. Drummondii* are two free flowering annuals which should have a place in every garden; grown in a mass they make a fine show and their flowers are good for cutting. The annual gaillardias are also good, *Lorenziana* has double flowers of various colors and *amblyodon* has red flowers. *Linaria reticulata aurea purpurea* gives lots of flower and is quite showy.

Nemesia strumosa Suttoni is a showy annual; last year it did not flower very well, but this season it has done very well, the colors range through crimson, white and yellow. It grows about a foot high. *Mimulus cardinalis* has a bushy habit, leafy stems, and showy scarlet flowers; it makes a very showy border plant, and blooms all summer.

Brachycome iberidifolia or Swan River daisy is a lovely dwarf annual, the plants are completely hidden with small blue flowers. Venus' looking glass is a free flowering annual making nice edgings, the colors of its flowers are blue and white. *Nierembergia frutescens* is in good flower and makes a nice show, it is also good for cutting, lasts in bloom all summer.

Viola cornuta varieties Admiration and White Perfection have flowered all summer long. Although the flowers are small they are very showy, although we treat it as an annual it is properly a perennial. Begonia Vernon, crimson, pink and white, is flowering fine; in a half shady place it grows and flowers very freely. The lobelias like a half shady place too. Erinus compacta alba and Crystal Palace compacta form nice little plants well suited for edgings and they flower very freely, especially up till midsummer. The annual chrysanthemums gives plenty of flowers that are good for cutting. Our favorite is Burridgeanum, a white variety with a crimson ring. *C. segetum grandiflorum* is the yellow ox-eye daisy.

Impatiens Sultani, a continuous flowering plant with pink balsam-like flowers, thrives admirably and blooms all summer. The petunias make a great show from early summer till frost. The Giants of California are the most showy and the markings in them are fine too. *Linum grandiflorum*, the red flax, is a nice showy plant. *Oxalis rosea* is very free flowering. *Ageratum Mexicanum* and the variety Imperial Dwarf gives a lot of flowers all summer.

The annual larkspurs flowered nicely, but what a lot of dirty colors there were amongst them. *Centaurea Cyanus* (the corn flower) is a nice thing for cutting and they last so long. The Marguerite carnations are making a great show, a bed of three hundred of them are in one mass of buds and bloom; for cutting they are one of the best things we grow. There are very few single flowers amongst them, and in size of bloom they are as good as some of our best nined carnations.

Zinnia Haageana fl. pl. has smaller flowers than the other zinnias, but it flowers so freely that we cannot do without it. Portulacca single and double is one of the chief flowers in the garden; it sows itself and comes up all over the ground, so we let it alone around the walks and it makes a nice edging and is always in flower.

Cosmidium Burridgeanum has large velvety coreopsis-like flowers, it grows about two feet high.

The small sunflower. (*Helianthus cucumerifolius*) is a good plant for the garden where cut flowers are in demand; the new variety of it called Stella is quite good with us, it forms a bush about four feet high the flowers are golden yellow with a dark center and not very large. The verbenas from seed are giving plenty of flowers and the salvias are beginning to bloom. The annual wallflower and Sutton's First of All are blooming freely. This old-fashioned flower is fine when well grown, and everybody likes it. *Tagetes lucida* has small yellow flowers, and the foliage has a strong marigold scent. The catch-flies are showy border plants and they sow themselves all over the ground. *Torenia Fournieri* makes a continuous blooming plant in the garden, also a nice pot plant for the window.

PERENNIALS.

The platycodons make a good show still. The hollyhocks are past their best. The phloxes are now making a great display; they are fine for cutting. *Rudbeckia speciosa* is still in fine flower and *R. purpurea* has very large showy blossoms. Dahlias both double and single are flowering nicely, so is *Coreopsis grandiflora*. The Peruvian lily is still giving lots of its orange flowers. *Anthemis Kelwayi* is a mass of marguerite-like flowers, they are good for cutting. *Lythrum Salicaria* and its variety *superbum* are in good flower and make a good show. *Campanula rotundifolia* and *C. carpathica* are blooming very freely. A few varieties of sunflowers help to make the garden gay. In lilies we have *Krameri*, which has blush colored flowers, and the *superbums* in good form; the latter grow to a height of 8 feet and more. *L. Wallacei* will be in flower in a few days, and so will a few other varieties. DAVID FRASER.

Mountain Side Farm, Mahwah, N. J. July 23, 1896.

DECORATIVE PLANTS FOR ROUGH PLACES.

You seem in need of so many things for your Park that I send you some seeds just gathered of a pyrethrum [No, it is a gaillardia —ED.] I got two years ago. It is the most persistent bloomer I have ever met with; it begins to bloom in spring and continues in flower till frost comes in fall, indeed it doesn't mind a little frost. Last summer when everything else was wilting into a dying state, this plant bloomed on as if dry weather were its delight, but this summer it is prettier by far. [Thank you, very much. The plant is one of the garden varieties of *Gaillardia aristata*. The big flowered forms of it are called *grandiflora*. All of them are excellent for our work.—ED.]

JAPAN HONEYSUCKLES would be useful on some of your banks; I could send you hundreds, if you so desire. [It is one of the best of plants for this work and we are growing it extensively.—ED.]

OF MY 34-INCH LONG WISTARIA FLOWERS, I can send you some if you wish. [Indeed we do. We have many young wistarias in the nursery rows and under all the leading names, still there is a select spot ready for yours; we know yours to be the true long-racemed one, we can only hope that ours may be so.—ED.]

PARTRIDGE-BERRY vine would be lovely in some of your rough places; nothing will kill it but digging up bodily. [Do you mean *Mitchella repens*? If so, while it is very common in many of our mountains and woods, carpeting large spaces, it requires a little coaxing to get it well established in many gardens —ED.]

Chrisman, Va. L. G. C.

IF YOU appreciate GARDENING please recommend it to those friends to whom you know the paper would be useful. You can assist us materially in this way.

GARDENING

WILLIAM FALCONER, Editor.

PUBLISHED THE 1ST AND 15TH OF EACH MONTH
—BY—
THE GARDENING COMPANY,
Monon Building, CHICAGO.

Subscription Price, $2.00 a Year—24 Numbers. Advertising rates on application.

Entered at Chicago postoffice as second-class matter.

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All communications relating to subscriptions, advertisements and other business matters should be addressed to The Gardening Company, Monon Building, Chicago, and all matters pertaining to the editorial department of the paper should be addressed to the Editor of GARDENING, Schenley Park, Pittsburg, Pa.

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CUT FLOWERS IN THE HOUSE.—I have just picked the flowers for Sunday. We always have flowers in the house, but Sunday is a special day. For fun I've just counted the vases filled with flowers and find there are twenty-six in all. Last year we were away at Oconomowoc four days. During our absence the flowers had wilted and were thrown out. When we returned even the children remarked, "How bare the house looks!" So writes one of our subscribers.

MOUNTAIN FRINGE OR ALLEGHENY VINE.—Dr. Adolph Kœnig, a physician and earnest botanist of Pittsburg writes: "Enclosed please find some seeds of *Adlumia cirrhosa* from wild-growing plants found on a rich, moist hillside, with northern exposure, bordering on Pine Creek, about one mile north of Etna. It is the only station at which it is known to grow in the county (Allegheny County)." Thank you for the seed. They were at once handed to our nursery foreman, who has sown them.

THE WET WEATHER.—This is by far the wettest summer we have ever known, at no time since last winter have we had the least drouth; rain falls most every day, and often in torrents.

VEGETABLE CROPS are growing rankly, and in the case of corn, beans and peas are fine; root crops also have been good; tomatoes are slow to ripen, and so are melons. Root crops, as beets and turnips, however, when they get a little old are apt to rot.

BEDDING PLANTS are not as good as they are in drier weather; while the growth of geraniums is very rank the flowers are destroyed by the rains; cannas are not growing or blooming as freely as they would did we have more sunshine; coleus and alternantheras never grew faster, but they are not bright as usual, and where the ground keeps soaking wet they are dying. All white-leaved plants such as centaurea, santolina and leucophyton are suffering, and in many cases dying, but variegated stevia and variegated abutilons are standing the wet pretty well, and, curious enough, so are the yellow-leaved *Mesembryanthemum cordifolium* and the variegated *Sedum carneum*. The wet is killing the houseleeks (*Sempervivum*) but the echeverias are keeping up well. Cacti, agaves, aloes, fleshy euphorbias and stout succulents of that nature were planted on mounds that allow the water ready escape look well, but those on level ground don't look happy, and neither are making good roots. Dahlias enjoy it, and while gladioli grow rank they don't seem to bloom as well as usual. We never before appreciated good drainage so much as we have done this year. In an ordinary season these level beds on a level piece of clay land would have been all right, but in a wet year they are all wrong, and when we change our ground plan ample drainage shall be a first consideration. Now we know why the outer row of the hyacinths and tulips we had there last spring were poorer than those in the middle of the bed.

TREES are growing well. Most of the old trees although they leafed out all right were so enervated from the drouth of the past two years as to be unable to keep up and are dying, but others again have recovered splendidly. Young trees are doing far better than old ones. Conifers never looked better. They are generally grown on hilly or sloping land and the drainage about them being good they thoroughly appreciate this wet weather.

THE SWAMP ROSE MALLOW FROM SEED.—Our nursery foreman got a lot of seed of this plant last year and sowed it in drills out of doors, the summer was very dry, and although germination was tardy and growth slow, a large number of plants were secured and in early fall were planted out in nursery rows. They wintered well, and have grown well and are now in bloom. What an attractive showy plant it is, and how easy to grow, and it is long-lived. Along the Atlantic coast where it abounds its commonness detracts from its value; in the West, however, where it is not a native, but thrives well, it is a great desideratum.

SANDWICH ISLAND MORNING GLORIES.—B. F. E., Kirksville, Mo., sends us some seeds, and writes: "Enclosed please find some seeds that were brought to me from the Sandwich Islands; all my friend could tell about them was that he believed they were some kind of a vine. I planted part of them in pots in the greenhouse, and yet after waiting three months, not one of the seeds has germinated." *Ans.* The seeds are of some morning glory (*Ipomœa*) but which species we cannot tell till we see the plants and flowers. They would have a better opportunity to germinate if sown in the open ground than if sown in pots.

WATER LILIES.—A few weeks ago (May 15, page 267) we published an illustration of an aquatic pond, but there was no text to it and several of our readers have written to us about it. It was a printer's mistake, he used the illustration ahead of time. The picture was engraved from a photograph taken by Mr. Mayer of Beaver Falls, Pa., of one of his outdoor lily ponds, for GARDENING; and now on page 337 of this issue Mr. Mayer kindly tells us about his lilies and how he grows them. A happy feature of Mr. Mayer's garden and lily growing is that Mrs. Mayer and the other members of their family are as deeply interested in flowers and growing them as he is.

OUR OPEN LAWN PICTURE, page 339, gives a very beautiful and apt garden landscape, the trees are spread to the outskirts, and shrubbery and other lesser plants are grouped along the front margins of the tree plantations and the sides of the lawn; but not a speck, or a bush, or a walk mars the beauty of the central body of the lawn. A tyro even cannot fail to appreciate the correctness of the object lesson shown in this picture; no sane person would dare run a walk anywhere on or about that lawn nor plant a tree near the middle of it. On the same principle our gardens appeal to us in the same way as this picture shown us. But there is one point even in this pretty picture that jars on us, it is the bed or circle of plants at the right; no matter what they are, unless for economic reasons, we would remove them and replace them with a piece of planting as suggested on the left hand side.

RECREATION AND HEALTH IN BOTANIZING.—"All work and no play makes Jack a dull boy," and physicians prescribe against overwork, they send their patients to Europe, to the mountains or to the seas de, in fact anywhere that is far enough off to get them away from their daily avocation, and give them a rest and a change of scene and air. Some of them take their own medicine, but others don't. Dr. Kœnig believes in practicing the doctrine he preaches, and in botany he finds recreation and relief from worldly cares. He has set all Thursday afternoons aside for field botany. On those afternoons he slings his tin specimen case over his shoulder and with a genial companion or two, betakes himself to the woods and fields. Every step is interesting to him every plant is a familiar friend, and whenever a wild plant not known before to be indigenous in the county is first discovered in it, the find is of scientific value. Only a person with botany in his heart as the Doctor has it can appreciate the intense pleasure to be had in these outings. Dr. Kœnig is preparing a handbook of the plants found wild in this county.

THE GOOD OLD ELDERBERRY BUSH.

If you want a little shade in your hen yard, try it. The chickens enjoy its shade and it grows nicely in the yard. In the Zoological garden here in Schenley Park there are a large number of small yards fenced off for pheasants and other birds, and in them are planted several kinds of shrubs, but the elderberry and the althæa are the thriftiest; and the former is much better than the latter because of the more spreading and shade-giving habit of its

A POT-GROWN FUCHSIA

branches, the althæa being too dense and upright.

On the steep dry slopes of our clay hills, especially along their flanks, the common elderberry bush grows as well as anything and looks very well at any season, and especially so when it is in bloom. It also grows wild in abundance in the shaly ground and slopes.

Prof. J. L. Budd of Iowa, writing in *Rural Life*, says of it: "During a recent trip across the state we could not fail to note the fact that the birds have scattered the seeds of the elderberry everywhere, but especially in the hog feeding lots. Usually such spots are a barren waste; but the elderberry springs up and the hog respects it. The great bushes soon become an oasis in the desert. Not a leaf is touched until the berry season, and sometimes not even then. If an old sow happens to get a taste of the ripe fruit, the whole bunch is soon pulled down and its neighbors also. In the hog lot it is a real treasure, as it is the only plant we know of that the hog will let alone, and when they pull it down for the fruit the leaves and bark are not disturbed."

THE BRANDYWINE STRAWBERRY, a variety of recent introduction, is giving great satisfaction. It is of good size, fine color, firm texture, fair quality, and the plants are healthy and productive, and succeed well in most gardens and soils.

The Greenhouse.

THE FUCHSIA AS A WINDOW PLANT.

The fuchsia shown in the accompanying illustration is the variety speciosa, and it is the best of all for winter blooming. This specimen has been in our hou e for several years, and so pretty was it last winter that I had my son Lendel photograph it for GARDENING. It is growing in an 8-inch pot. We plant it out of doors in summer in a slightly shaded place, and lift and pot it early in fall; at setting out time in early summer it is pruned back severely, as my object is to have as many shoots as possible, as the clusters of flowers are terminal, and when they come into bloom the shoots lengthen and arch over with the weight of blooms, and keep on growing and blooming almost indefinitely. The soil is rich fibrous loam and leaf soil as old rotted soddy ground; the pots are well drained, and we give water freely, but water must not stagnate about the roots. Speciosa is not a continuous bloomer, it rests in summer, but it is one of the prettiest of all fuchsias.

MRS. NICHOLAS HALLOCK.

Queens, L. I.

THE GREENHOUSE.

Now that the greenhouses are as empty as they are likely to be at anytime of the year get ready for winter, have them repaired and painted, and attend to any improvements that are necessary. See that the doors open and shut easily, that the ventilators fit perfectly and the gearings work easily, that the gutters are not defective anywhere, that the benches and supports are sound, that the chimneys are clean and safe, that the drains are open, that the heating pipes are tight, of even grade and do not sag anywhere. Have the staging examined, and mended wherever there is a broken board.

Give the plants in the greenhouse lots of room so as to promote a full stocky growth, when winter comes they will get crowded up tight enough. Have all of the big plants thoroughly cleaned, don't leave a scale or a mealy bug anywhere; you have a better opportunity to clean the plants now than you will later on when they are more crowded. While we should shade most palms, ferns, and variegated tropical plants as marantas, dracenas and alocasias, we should use less shading now than in spring.

Water all plants abundantly and syringe those not in flower overhead morning and early in the afternoon, but in syringing—which is generally done with a hose—don't drown the plants, that is don't play the spray so much or so long upon them as to saturate the ground in which they are growing, be moderate in hosing. But when you do hose the plants direct the stream against the underside of the leaves, for it is there the most of the insects lurk, and make it a cleansing as well as refreshing bath.

Repotting plants is always in order. Whenever a plant becomes potbound give it a shift into a one-size larger pot. Be very particular that the new pot is clean on the inside, and that it is well drained and there is some rough material between the drainage and the loam to keep the latter from clogging the former. Always pot firmly.

Always keep the flower pots clean in your greenhouse, a green slimy pot is repulsive no matter how choice its occupant may be, and arrange the plants tastefully, a pretty arrangement goes a long way towards making up for a lack of blossoms.

Fancy caladiums should now be in all their glory; a little weak manure water twice a week will help to keep them looking well. The same with achimenes. We are repotting our spring struck begonias from 3 to 4-inch pots, they are in a cool greenhouse. Chinese primroses are in 4½-inch pots and well spread out on the benches of a cool greenhouse; *P. obconica* from seed this spring is in 3 inch pots and plunged in a cold frame out of doors. Cyclamen in 2½, 3 and 4-inch pots are ready for another shift; they are in a cool house thinly shaded. A neighbor growing them in a cold frame and shaded with lath shades reports having bigger and finer plants than ours which are grown in the greenhouse. Chrysanthemums are everywhere, some are standards, some long one-stemmed, some three stemmed, many bush plants, lots of young single-stemmed, and a thousand in the cutting bench. We have too many, but the young gardeners have got their hearts set on them, and we believe in humoring the gardener when he is on a right tack.

Our tea roses are planted out in beds, so are bouvardia, smilax and asparagus, and we are going to plant out a lot of carnations too this month. Of all of these too we shall grow a lot in pots. Our hybrid roses are in pots out of doors; having matured their wood we are encouraging them to ripen it.

As frost comes here too early to admit of cosmos blooming out of doors, as it did with us at Dosoris, we have hundreds of plants of it in pots out in the frame yard; they are now in 6 and 7-inch pots and kept pinched back to within a foot or eighteen inches of the ground. We shall yet pot on into 8 and 9-inch pots, using very rich soil, and potting hard, place the plants wide apart, water freely, and pinch back unsparingly for four to six weeks yet. Marguerite daisies are also in 6-inch pots, pinched hard back, and like the cosmos in beds in the frame ground We also have there poinsettias, Jerusalem cherries (*Solanum capsicastrum*), libonias, yellow linum, mahernias, shrubby veronicas salvias, celosias and other soft wooded plants useful for conservatory work in winter.

We had our azaleas plunged out of doors, but on account of the continuous rains the holes keep full of water so we lifted the pots out of them and set them on the level. This necessitates more frequent and careful watering, but better do this than have the roots of the azaleas rotted off with lying in continuous soak. Genistas are plunged outside, but as they are more on a ridge than on the level, there is less danger of continuous root soaking in their case. We cut them back now and again but we don't shear them as one would a hedge plant. Callas are at rest; we shall pot them this month and place them outside, not giving them any water except rain. In this way they root well and come on very stocky. Freesias for earliest work are being potted now and too a batch of Harrisii lilies. This month we shall also pot some Roman hyacinths and paper white narcissus for early flowers, we can have them in bloom in November.

The spiræas, weigelias and other shrubs we intend for forcing and are now in nursery rows have had their roots pruned in once before this summer, and we shall cut them in again this week, this is to render their lifting easy and their blooming sure, by having a big mass of fibrous roots all close to the stem.

UNDER THE BENCHES.

I have a greenhouse divided into a rose house and carnation house in which I raise flowers for cutting for my own use in the winter. The houses are heated by hot water pipes under the benches. I want to raise as much as possible of what is suitable for cutting, and write to ask how I can utilize the room under the benches beside the walks to the best advantage. What will grow there that is suitable for my purpose? SUBSCRIBER.

That depends on how the pipes are arranged, their nearness to the walk and other circumstances. Close to the pipes you cannot raise anything. If away from the pipes you could grow a row of English ivy in pots for basket, vase or other trimming, or you could start potted bulbs there. If not too warm you could keep dahlia and canna roots there; or you might store erythrinas, daturas, and plants of that nature over winter there. Under the centre bench you might grow mushrooms. In fact such space may be used for lots of little odds and ends in this way, but at best it is only a makeshift.

GERANIUMS AND BEGONIAS AILING.

H. E. L., Conn., writes: "Kindly tell me what is killing a bed of geraniums. One of them, also a sick begonia, I send to you by to-day's mail. As you will see, something is eating the geraniums, and the stalk is hollow from the root up. What is doing the mischief, and how prevent? Two years since I lost several choice begonias, the veins in the leaves first turning black, then the stem and the stalk from the top downward until it died." *Ans.* The whole length of the stems of the geraniums is perforated by a borer, but it had escaped before the shoots reached us, more than likely before you plucked them. Probably the worst of the trouble is over and there is no certainty that the pest may appear next year. First we must catch the borer and get it identified, until then we cannot tell what it is, or, very well, how to combat it. The begonia shoots are badly affected with begonia rust, a parasitic microscopic insect; badly diseased plants are not worth bothering with; repeated washings with tobacco water, also fumigating with tobacco have been found by the Kew authorities to be the best remedy for begonia rust.

The Vegetable Garden.

THE VEGETABLE GARDEN.

The heavy and continuous rainfall of the present summer has been excellent for young crops, and for getting seed to germinate, and we never before had such fine weather for newly set out plants; there has been no excuse for blanks in our crops this summer.

ASPARAGUS.—Keep the cultivator at work and handpull all big weeds. Lots of ragweed, pigweed and the like come up in the rows with the "grass" and cannot be got at with the cultivator; these should be pulled out or chopped off low by a sickle.

GLOBE ARTICHOKES.—Use every head as soon as it is big enough to cut; this is far better for the plants than leaving them to blossom; and as soon as the heads are all cut, cut the old flower stem back close to the ground. We use a good many artichoke leaves in floral decorations as a backing for lilies, tritomas, gladiolus, etc., and they look well.

JERUSALEM ARTICHOKES have met and closed up in the rows so that no weeds can grow among them; at the same time be careful not to let them overcrowd one another, for the more crowded they are the poorer are their tubers.

BEANS.—Continue to sow snap beans. All sown before the middle of August should mature a crop as far north as New York, and near the sea coast a sowing may be made ten days later with comparative safety. The dwarf Lima beans get so thick matted in the rows that we should be careful to see that the land is well drained on the surface, else the pods are apt to must and spoil. If any of the vines belonging to the pole beans fall down or run astray tie them in to their proper supports. The closer you keep pole beans picked the longer and better they will bear.

BEETS.—We have had very good beets from sowing made about the first of August, but it is much better and safer to sow the main crop for winter in July. If they are at all late thin them well in the rows and keep the ground about them well stirred.

CARROTS should be treated much the same as beets.

CABBAGE.—It has all been planted some time and growing rapidly, in fact so much so on account of the moist weather that we fear its heads may burst a good deal before winter. Where there is this danger, with a digging fork pry them up without pulling up so as to break their roots a little, and at once tread them down again. The same treatment may be given to cauliflower. But don't do it to Brussels sprouts, for they don't burst no matter how early they may be planted. Curled kale may yet planted if there is any land to spare, for no matter if it is only half grown it is just as good to eat, when winter comes, as old stocks.

CELERY.—From the moment celery germinates till it is stored past for the winter it should be kept in one unbroken rush of growth; this makes it tender, and if it hasn't been sown too early there is no danger of its running to seed. We never before had such a summer for growing celery. If you have not planted out enough of it plant it yet. As it isn't always convenient to have ground enough ready to set out the full crop of celery at once, rather than let it spoil plant it out in rows 4 or 6 inches apart in rows a foot asunder, and later on whenever convenience permits lift it and plant it out permanently. Be careful in this wet weather not to make the trenches too deep, 3 to 4 inches.

CORN is fine. Too late to sow any more.

CUCUMBERS.—Keep them well picked. Dust them freely with tobacco powder. Sow some in a frame and cover with sashes for late use; if injured in August they do little good later.

ENDIVE.—Transplant the main crop as you would lettuce, but a little farther apart.

LETTUCE.—Sow in the row and thin out the plants to 5 or 6 inches asunder. Transplant the thinnings wherever there is an empty piece of ground.

OKRA.—Keep it well picked.

ONIONS.—Keep green, as soon as they lop over to ripen let them dry off, then

[CONTINUED PAGE 350.]

Our 1896 STRAWBERRY **McKinley.**

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On account of the International Fair to be held at Toronto, September 1 to 12, 1896, the Wabash railroad will sell excursion tickets from Chicago to Toronto at one fare ($12.40) for the round trip. Tickets will be on sale and good going August 31st to September 3rd, inclusive, and will be good for return passage until September 14th. Train service first-class. For maps, time-tables, sleeping car reservations, etc., call at Wabash ticket office, 97 Adams street, or write to F. A. Palmer, A. G. P. A., same address.

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pick them for curing. They may last till next month, though. Onion ground is generally an excellent piece for strawberries.

MELONS are slow in ripening, but look well. Pull out the crab grass and big weeds from among them.

PARSLEY.—Thin out the summer sowing and get the plants sturdy for winter.

SPINACH.—Keep up the supply by a sowing once a fortnight.

POTATOES.—After the early ones are ripe and the haulms have died away the tubers are better out of the ground than in it, but let the late ones stay in the rows as long as any of the stems keep green.

TOMATOES are slow in ripening, but the fruit is heavy. In wet weather like this the fruit ripens and keeps better when the vines are tied up to stakes or a trellis than when allowed to sprawl on the ground.

TURNIPS.—Put in a big sowing this month of white and yellow varieties for winter use. South of New York the middle of the month is early enough, for we dont want very big turnips.

THE CORN WORM.

(*Heliothis armigera*).

I send you to-day per express two ears of early sweet corn, taken from one of several plantings made at Lake Como, Wis., by Mr. Jas. P. Smith. Last year he first observed a species of caterpillar in the tops of a few ears of sweet corn. This year, in going through this patch of corn, the earliest piece, I found them in each ear that I opened, some very small, not over half inch in length, and up to about 1⅜ to 1½ inches long. They appear to commence work in the silk, as though an egg had been deposited there, and they then work down to, and eat away a considerable part of the kernels on the upper third of the ear. WM. H. CHADWICK.

Chicago.

It is the corn worm, known also as the cotton or boll worm. It is very destructive to first-early and sometimes second-early corn. We seldom find it in main crop corn, but it occasionally reappears in latest corn. It has been referred to several times in GARDENING, and we cannot do better than rewrite here what we wrote in this journal July 1, last year, page 316: "We await the coming of the first mess of sweet corn about as anxiously as we do the first mess of strawberries, but how disgusting and disappointing it is when we find that every ear of the early corn is infested and channelled by the dirty looking larvæ of the corn worm. Just as soon as the corn silks we look out for these worms. The moth lays its eggs among the silk. In a few days they hatch out and the young larvæ make their way to the ear, beginning at the end of it. Then is the time to catch them. We go over every ear, open it a little bit at the end to see if there are any worms in it, and kill them if there are. With this care we get nice corn; without it the corn is practically destroyed. Any hills missed are sure to be infested. Tedious as it is, it is the only real remedy."

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BULBS AND TUBEROUS ROOTED PLANTS (Allen).—Over 300 pages and 75 illustrations. A new work by a specialist in this line. Tells about lilies, cannas, dahlias, hyacinths, tulips; and all manner of bulbs and how to grow them indoors and outsides, summer and winter. $2.00.

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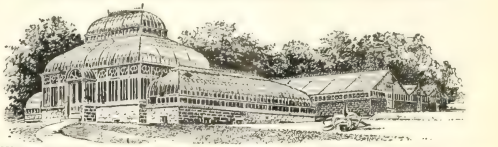

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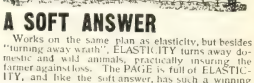

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GARDENING

Vol. IV. $2.00 A YEAR. 24 NUMBERS. CHICAGO, AUGUST 15, 1896. SINGLE COPY 10 CENTS. No. 95.

OLD DEAD WHITE PINE TREES COVERED WITH AMPELOPSIS VEITCHII.

Trees and Shrubs.

COVERING UP THE OLD STUMPS OF TREES WITH VINES.

Our first page illustration is engraved from a photograph taken by us of some old white pine trees in front of a residence at Flatbush, Brooklyn. It is not given for its beauty or desirableness as a garden scene, but for its suggestiveness; it is a lesson from life showing how effectually we can cover up the naked trunks of trees with living vines, and render them in a measure less hideous than they otherwise would be in their bareness of death. But the proper thing to do with these trees is to root them out and clear them right away; there is no reasonable excuse so far as utility or good taste is concerned why they should be kept there, and no covering of vines no matter how well done can palliate their presence.

But there are cases where it may be desirable to retain dead stems or trunks or stumps, and of coarse these stems should be clothed with living green. In many case, too, the tall bare stems of living trees may be beautified by encasing them in vines. In the Capitol grounds in Washington many of the trunks of the trees are so clothed, and at Dosoris we covered the bare stems of old cedars in the same way.

The vines shown in our picture, and which is the one most used everywhere and best adapted for this purpose is the Japan ivy (*Ampelopsis Veitchii*); it clings tight to the bark of the tree, is neat and clean; fast growing, close covering, and high reaching, in summer it is a living coat of green, in fall of crimson, and in winter the leaves fall off completely, leaving the trees as tidy in their bareness as they were in their leafy clothing. When it reaches up into the branches it encases the limbs and a spray drops down from them in elegant drapery, thus eliminating any appearance of stiffness. In winter this drapery can be sheared off if necessary. This ampelopsis, like most Japanese plants, likes good, moist ground to grow in, and as alongside the boles of living trees are generally pretty dry places we must look to it that they are properly furnished with an abundance of food and water.

Besides the plain *Veitchii* the larger form known as *Roylei* is also good for this purpose. Next in appropriateness comes our own wild Virginia creeper, especially Engleman's form of it that attaches itself close to the trunks by means of tendrils like the Veitch's ampelopsis. Then comes the trumpet creeper, excellent, beautiful and appropriate, particularly where a drapery among the branches is an object. The English ivy will do in moist, sheltered places, south of New York, and where the sun doesn't blaze on it in winter. Of slower growth and not so high climbing are the climbing hydrangeas; and a little shorter still the climbing euonymus. These last will climb up the rough stem of a tree nicely, but make barely any effort to climb if left to themselves away from the tree, they assume more of a bush than vine form in this case. Clematises may be led up the stems of trees and allowed to fall in festoons from their branches, but they have to be tied up or led up to the stems to begin with. With a little trouble celastrus, moonseed, honeysuckles, ipomœas, hop, pipe vine and some others may also be used. Wistaria, silk vine (Periploca), and actinidia may appeal to many as being good subjects for this end, but no, they are apt to be naked at the bottom, just where we want them clothed the most, and they twine around the branches of the trees unmercifully, often strangling them. By using low covering vines like honeysuckles, celastrus, and moonseed in company with them, these to cover the trunks, and the wistarias, actinidias to run into the upper parts, a fair effect can be secured. The sterile-flowered grape vine may be employed much the same as the wistarias, while it is of very little use for clothing the lower part of the tree trunks it will completely fill the heads of the trees. Altogether, however, *Ampelopsis Veitchii* is preeminent for this purpose—covering the naked stems and branches of trees with a solid coat of green from the ground to the summit.

RHODODENDRONS: HOW I GROW THEM.

Four years ago I had imported for me from the nursery of Anthony Waterer, England, one hundred rhododendrons on seventy-six varieties. They were first planted in heavy soil under trees and of course as I had selected them by catalogue description and not for hardiness I lost some the first winter. In November of the second year I transplanted them to a sandy soil composed largely of sod. They were out of the ground a week and roughly handled, and transplanted at a season I believe all growers consider fatal to the rhododendron. [Oh no. Don't you remember seeing that very large mass of rhododendrons near the old farm house at Dosoris? Well, they were transplanted in October—November a few years ago, and they have done very well. We would not import rhododendrons for outdoor planting at that time, but so far as moving them from one part of our own garden to another is concerned we would do it in October or November without any hesitation.—ED.] The soil was so light and the first summer so dry I had to give them several wettings a week. Of the seventy-six varieties the following plants are thriving with me. I give you first the varieties I have found hardiest:

ALBUM ELEGANS, blush, changing to white, good shape.

ALBUM GRANDIFLORUM, blush, large flower.

ALEXANDER DANCER, light rose, very fine.

ATROSANGUINEUM, intense scarlet, and one of the best.

BACCHUS, crimson, very large flower, fine plant.

BLUEBELL, blush, purple edge.

ARCHIMEDES, crimson, light center.

CARACTACUS, fine, crimson, large flower and foliage.

CHARLES BAGLEY, light red, large flower.

CHARLES DICKENS, rich scarlet, fine foliage and habit.

CŒRULESCENS, bluish, large flower and good habit.

COREACEUM, white, not a free grower.

DELICATISSIMUM, white, pink edge.

E. S. RAND, fine scarlet, hardy with me.

EVERESTIANUM, pink lilac, spotted and fringed; the best to my mind.

GIGANTEUM, good rose, large flower.

GUIDO, dark crimson.

HANNIBAL, fine rose, late.

H. W. SARGENT, crimson, very large trus.

KETTLEDRUM, rich dark crimson.

KING OF THE PURPLES, fine purple, and habit.

LADY ARMSTRONG, brilliant rose, very beautiful.

MADAME CARVALHO, blush, changing to white.

MEMOIR, scarlet.

MINNIE, blush white, spotted beautiful.

MACULATUM.

MISS OWEN, blush, red spot.

MRS. G. W. HENEAGE, rosy purple, fringed.

MRS. HARRY INGERSOLL, rosy lilac.

MRS. MILNER, fine crimson and habit.

OLD PORT, rich plum.

PURPUREUM ELEGANS, fine purple.

PURPUREUM GRANDIFLORUM, fine purple, large flower.

ROSABEL, pale rose.

ROSEUM ELEGANS, very reliable.

R. S. FIELD, scarlet.

SEFTON, dark purplish red.

LADY CLERMONT, fine scarlet spotted.

Mr. H. H. Hunnewell I see does not regard Minnie as perfectly hardy, but I have found her so here, perhaps because of her situation on the southeast of the house. The varieties that I have found generally hardy but occasionally pinched in a severe winter are:

F. D. GODMAN, fine crimson, richly blotched, and splendid habit, one of the rarest to my mind.

J. M. BROOKS, rich scarlet, finely spotted.

JAMES MACINTOSH, scarlet, fine foliage.

J. P. LADE, greyish lilac.

JOHN SPENCER, rose pink edge, large truss.

JAMES BATEMAN, scarlet, unsatisfactory.

LADY GOODWIN, white spotted yellow.

PURITY, pure white, slow grower.

BAYANUM.

BARCLAYANUM.

DELICATUM, blush changing to white.

SIGISMUND RUCKER, magenta, richly spotted.

MRS. SHUTTLEWORTH, scarlet, spotted.

MRS. JOHN CLUTTON, finest white.

QUEEN, blush, changing to white.

CHARLES HAROLD, purple, greenish, centre.

VAUBAN, mauve, yellow spot.

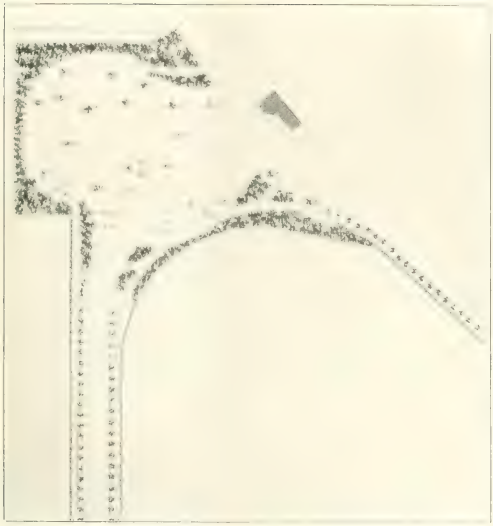
SIR THOS. SEBRIGHT, rich purple blotch.

NIGRESCENS, darkest rhododendron grown, slow growing, but beautiful.

Unfortunately many of my plants have lost the labels and I am therefore unable to give you the name of some very handsome ones, especially a splendid scarlet.

I observe a few rules in growing the rhododendron. I nip out the seed pod when the flower drops. If last year's wood is weak I pinch out all the growing sprouts of new wood but the strongest one. If there are more than three new sprouts I always pinch out all but the three strongest and in this way regulate the shape of the plant and strengthen its growth. As soon as I think the winter's moisture is out of the ground I give the plants a thorough wetting twice a week unless the season is rainy. I never permit the soil to become dry. My experience satisfies me that water is the main essential of rhododendron growing and that severe winters are not to be feared so much as dry summers. Each fall I put several inches of old manure, cow or horse as I can get it, on the soil about the plants. I never disturb the soil, not even using a weeder when weeding the bed. I cut many of the weak plants to the ground in the spring and have been rewarded with a splendid new growth. I moderate the irrigation of the plant when the new buds begin to form as I have found vigorous growth at that time leads to new wood rather than flower bud for the succeeding year. Changing the words of Dean Hole in his book on the rose, "the man who would have rhododendrons in his garden must have them in his heart."

Given the attention I have indicated, which even the busiest and wealthiest



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Sewickly, Pa. JOHN MARRON.

SMALL TREES FOR SMALL GARDENS.

We need big trees for shade and landscape effect, but for floral beauty we must appeal to the smaller trees, besides many gardens are so small that the only room in or near them for big trees is on the street, between the curbing and the sidewalk. Among these trees that I like best are the following:

MAGNOLIA SOULANGEANA, the best of the early flowering hybrid magnolias; its blooms are purple and white, appearing from the end of April well into May, before the leaves.

MAGNOLIA CONSPICUA, the white Yulan magnolia, earlier and more beautiful than the last named but a little more difficult to establish.

THE RED BUD (*Cercis Canadensis*), a very striking native small tree with many reddish purple pea flowers along the branches before the leaves appear. The pretty heart-shaped leaves are also attractive.

THE SNOWDROP TREE (*Halesia tetraptera*) is a gem among small trees, its profusion of snowdrop-like blossoms all over the tree are very pretty.

THE YELLOW WOOD (*Cladrastis tinctoria*) is a handsome round headed tree with pinnate leaves, and drooping panicles of white pea flowers in June. A most deserving tree that is much overlooked.

PAUL'S DOUBLE-FLOWERING SCARLET THORN has bright carmine red flowers about the end of May, and is the most esteemed of all the thorns.

FLOWERING DOGWOOD (*Cornus florida*).—Don't despise it because it abounds in our woods, no garden tree is more deserving of cultivation and it thrives well in the garden. Its ripe fruit in summer, and its deeply and brilliantly tinted foliage early in fall also add greatly to its garden value.

SHAD TREE (*Amelanchier Canadensis* var. *Botryapium*) is one of the most beautiful sights in our woods in early May when it is covered with fleecy white flowers. It thrives just as well, if not better, in the garden.

KOELREUTERIA PANICULATA is a little Chinese tree of the easiest cultivation, covered in July with large panicles of small yellow flowers, and these are soon succeeded by inflated seed pods almost as striking in appearance as are the blossoms.

THE WHITE FRINGE (*Chionanthus Virginica*) has clouds of fleecy white blossoms in June, and surely must find a place in our gardens.

THE MANSCHURIAN ARALIA, not unlike our southern Hercules' club, has immense compoundly pinnate leaves and heads of large compound panicles of white flowers in bloom in August, and before the fall is over the flowers are succeeded by small black fruit which add to the decorative features of the plants, but the birds soon eat them up. This is far from a detraction, for anything of the sort that will invite the buds into our gardens has a value. JOHN DUNBAR.

Highland Park, Rochester, N. Y.

THE LABURNUM TREES DON'T BLOOM.—C. M., Chestnut Hill, Philadelphia, writes "We have a pair of laburnum trees which don't bloom, though one of them had a very few flowers a year or two ago. Can you suggest what may be the difficulty, or any remedy?" *Ans.* Without knowing something definite about the condition of the trees, their cultural care, and environment, we cannot give you any positive advice. The trees are perfectly hardy at Philadelphia; we had several of them at Dosoris that bloomed full every year, and they thrive fine at Boston. If yours are in vigorous condition try cutting in around the roots, say describe a 4 to 6 feet wide circle around the tree, then dig deep on this line so as to sever the roots that reach out beyond it without impairing the vitality of the trees, and fill in the trench again at once. This root pruning checks luxuriant growth and induces trees to form flower buds.

Landscape Gardening.

PLAN FOR GLEN COVE STATION, LONG ISLAND RAILROAD.

Some of the railroads, notably the Pennsylvania and one or two of the New England companies have been devoting considerable attention to gardening along their lines of late years. Station grounds have been beautified and the steep banks made by grading cuts have been planted with vines and shrubs. This work is not costly and is a distinct gain to the companies by making their roads more attractive to travelers and the seekers of of suburban homes, and in the case of steep banks saves them from loss and trouble by preventing the slipping of loose surface soil, which is very apt to happen after heavy rains or when the frost comes out of the ground in the spring on unplanted banks.

The present plan was made for the station grounds at Glen Cove, Long Island, near which station are the country homes of many wealthy New York people. These grounds are much larger than those usually surrounding suburban stations, but I believe the residents joined the railroad company in buying and improving the grounds, and the result will be a very attractive little park that will be a pleasure and credit to all concerned.

The grounds have been laid out and planted as attractively as possible, but the practical purposes of the station have not been overlooked and ample space has been left for standing room for carriages at the platforms.

The planting list includes many beautiful trees, shrubs and herbaceous plants, but all of easy culture, things requiring care of course, but not the care of an expert. It may be interesting to know that the famous "Dosoris" is near this station and to this Glen Cove owes much of its progressive spirit.

EXPLANATION OF PLAN.

1. *Magnolia macrophylla.*
2. Scarlet oak.
3. *Magnolia conspicua.*
4. Nordmann's fir.
5. Sugar maple.
6. *Abies concolor.*
7. Wier's maple.
8. Silver maple.
9. *Picea polita.*
10. White-leaved weeping linden.
11. Colorado blue spruce.
12. Groups of white birch.
13. Cut-leaved birch.
14. *Magnolia conspicua.*
15. *M. parviflora.*
16. *M. Soulangeana.*

17. Tulip tree.
18. Oriental spruce.
19. Douglas spruce.
20. *Abies Cephalonica.*
21. American elm.
22. Oriental sycamore.
23. Weeping rose-flowered Japan cherry.
24. American elm.
25. *Salix pentandra.*
26. Group of hemlock spruce.
27. White leaved linden.
28. *Malus Halleana.*
29, 29. Massed planting of trees and shrubs.
30. Pin oaks planted fifty feet apart with Carolina poplars planted alternately. Poplars, which are of extremely rapid growth, are to be cut out as soon as the pin oaks are of an effective size.
31. White ash planted fifty feet apart and Carolina poplars planted alternately to be treated as noted above.

In addition to the above a California privet hedge is planted along both sides of the main entrance driveway and along one side of the driveway paralleling the railroad track. J. WILKINSON ELLIOTT.
Pittsburg, Pa.

A COUNTRY ROAD IN THE NORTH CAROLINA MOUNTAINS.

The photograph herewith sent [from which our illustration has been engraved. —ED.] shows some beautiful foliage effects with rhododendrons and azaleas, and they are entirely natural. You will see that a country road has been cut through the "laurel thicket." as heavy rhododendron and kalmia growth is here called. The photograph was taken by Prof. Stephens of Ann Arbor University, on the beautiful Linville River—really only a small mountain stream—on my property.

What a beautiful picture this is, to be sure, and what a splendid growth it shows! Alongside of its natural growth and beauty and artificial planting is puerile. A woods or park growth like that in Pittsburg would be invaluable; what a glory it would be in Schenley! But we can try to imitate it. While a narrow road like that might serve all right as a bridle path it is too limited in width for a carriage road in any except a coun ry woods. The great beauty of the shrubbery when in full bloom can well be imagined, for nowhere do rhododendrons and azaleas and kalmias grow better or bloom more lavishly than in these mountains; but even when out of bloom the denseness of the bushes and their mass of foliage are very pleasing.

While I have seen some very fine shows of rhododendrons along the Pennsylvania Railroad from Altoona to Pittsburg over the mountain pass still one does not see our American Ericaceæ in its glory, I think, further north than the mountains of Virginia and even there it does not compare with the grand show made by this order in the Carolina and Tennessee Mountains. We have square miles of it, veritable jungles where the *Rhododendron maximum* and *Kalmia latifolia* entirely exclude other undergrowths unless it be the graceful *Andromeda* (*Leucothoe*) *Catesbæi*, which is of course a much lower grower than the two former, which attain an arborescent size of 20 to 30 feet and 18 inches in diameter. The purple *Rhododendron Catawbiense* is generally confined to the mountain tops and higher elevations, usually 5,000 to 6,000 feet, and rarely under 4,000 feet above sea level. In its rather local and isolated stations (none outside of North Carolina) *Rhododendron Vaseyi*, the beautiful recently discovered azalea, is apt to be crowded away from the streams where it delights to make its habitat by the sturdier *R. maximum* and *Kalmia latifolia*, and luxuriates on the edges of the "laurels" and the hillsides above even to the summit; under these circumstances I have found it growing at the low elevation of 2,500 feet and again 6,000 feet up in the clouds capping the extreme summit of the dark balsam-clothed Grandfather Mountain with its precocious masses of delicate white and pink clusters on naked stems, to be followed in order named by *R. Catawbiense*, *Kalmia latifolia*, *R. maximum*, and lower down *Azalea calendulacea* and *A. viscosa* with *R. punctatum*, the pretty small pink species having blossomed before the *Catawbiense* on the wilder ledges and in the crevices of bare cliffs.

Two thousand feet lower down *A. nudiflora* has blossomed at the time of *Vaseyi* and *A. viscosa* is to be found everywhere, at home near our sandy sea shore and equally so on the highest mountain tops, its time of blooming depending of course on its elevation, with us in July, lower down in May. The pink stamened *A. arborescens* inhabits the banks of streams and is again found on some of our highest mountain tops; the exquisite odor of this azalea alone places it among our most desirable shrubs were it not for the foliage, which is the finest of any cultivated azalea, native or exotic; the beautiful large clusters of white flowers are rather shyly disposed unfortunately beneath the new annual shoots and foliage, a fault we can forgive inasmuch as it blossoms after all the other azaleas have formed quite respectable sized seed pods. For fine landscape work the value of this species cannot be over estimated; and for this use I would rank it with if not above the gorgeous flowered *A. calendulacea* or "flame-colored azalea" as it is justly called on account of its brilliantly-colored flowers, which run the gamut of color from light orange to deep crimson, making our hillsides aflame during parts of June and July.

While the wild native beauty and superb growth of our Carolina rhododendrons and azaleas can hardly be transplanted in its full glory to the confines of the city park or private grounds still by proper preparation of soil and good care, following out as much as possible the teachings of nature, there is no reason why the most sanguine expectations in effects may not be realized, if one will only forget the conventional in arrangement and plant so as to reproduce some of the varied landscapes so far as possible of our forests.

Among other ericaceous plants natural companions of the rhododendrons and azaleas in our Southern Blue Ridge Mountains the already mentioned *Andromeda Catesbæi* perhaps heads the list as the most graceful and adaptable low-bush evergreen we have; its long curving sprays contrasting splendidly with the stiffer growth and foliage of the higher growers; then there is the long list of deciduous andromedas and leucothoes, many especially fine including *A. recurva* and *A. Mariana* and our American prototype of the Scotch heath, *Leiophyllum buxifolium*, which we find growing as contentedly in our high southern mountains as among the Jersey pines. Of all plants suitable for borders and rock-work the prostrate form of the latter, *L. prostratum* is the finest, at least among our American plants. On our highest mountain tops it forms dense mats clinging to the barren rocks and cliffs if it can get a crevice for a foothold, one plant covering often a diameter of 5 to 6 feet with a height of only 2 to 5 inches, so compact as to comple ely hide the rock; and when covered with its small white flowers in the greatest profusion it presents a sight well worth the climb it takes to see it. One of our most remarkable plants of this family is the *Galax aphylla* or "Colt's foot" as it is commonly called here from the shape of the leaves, which rise from the ground on separate and very graceful stems, the plants growing thickly and literally forming a feature in the landscape for many hundreds of square miles along our Alleghany Mountain sides and summits; for it is found in the dense "laurel" and on the sunniest southern exposures, where the alternating frost by night and sun by day turn the leaves a most beautiful bronze, while in the deeper woods and thickets they remain perfectly green until the new crop comes the following spring. So popular have these leaves become for decorating purposes that nearly ten million were used the past season by the florist trade in this country. What finer sight is there than the sunny bank of a brook covered with a mass of these brilliant leaves in late fall and winter? For planting along streams and for ground covering in dense shade it is really a foremost plant. HARLAN P. KELSEY.
July 21, 1896.

BOOKS ON LANDSCAPE GARDENING.—L. R. L., Lansing, Mich., asks: "Can you name any book recently published, one that is up to date, that gives good definite plans for laying out private grounds? Have Vaux, Elliott, Olmsted or any other artists in landscape gardening recently written any work on the designing and laying out private grounds in cities?

Ans. We know of no such a book. Neither of the landscape gardeners that you name has written a book on the subject, great is the pity. Get Downing's, Parsons' and Long's works on landscape gardening, and William Robinson's English Flower Garden and Wild Gardening, and study and weigh their contents, and if you have a cool head, good landscape taste, a handy pencil, and a familiar knowledge of plants and gardening, no doubt you can evolve a pretty nice and apt design for any town or city lot you may be called on to handle.

The Flower Garden.

OUR ANNUALS.

Our China asters, especially Truffaut's pæony perfection, pyramidal, bouquet, and dwarf chrysanthemum varieties are very fine with us; the quilled ones are good, too, but no one seems to favor them. Our late sown zinnias are coming into bloom; we grow them, also marigolds, to plant into the spring bulb beds, so as to cover and brighten the ground as soon as the bulbs die down. Dwarf nasturtiums are doing excellent work in this way; we have them planted in the narcissus beds. Sweet scabios are in good flower and they are fine, showy in the garden and excellent for cutting. Sutton's Snowball is a lovely white scabios. Sweet peas have done well, we are growing them in round clumps, one variety to each clump *Salvia splendens* from seed sown in spring is coming into bloom, and what a blaze it makes. The salpiglossis with funnel-shaped, variously colored flowers are very showy, and we like them as cut flowers as well. Stocks will

A COUNTRY ROAD IN THE NORTH CAROLINA MOUNTAINS

soon be past. Sweet alyssum was fine earlier in the season, but the recent heavy rains rotted it where it was thick. The perpetual early blooming carnations are giving us some fine flowers now; the double border ones are also beginning to bloom, and so is the early scarlet Grenadio. All were raised from seed. But for a show there is nothing to equal the Marguerite carnations for cut flowers, and they bloom so freely. Get a bunch of them with a few sprays of rose geranium around them and see what a pretty bouquet they will make. The profuse little leptosiphons were very beautiful, but they are past now. Mignonette hasn't done as well with us as usual, and we miss it very much.

PERENNIALS.

The hybrid delphiniums from seed this spring are blooming now; Lemoine's double flowered ones are very fine. Because of the rain and good ground some of our sunflowers are 12 to 14 feet high. *Agrostemma Flos-Jovis*, although a perennial blooms well the first year from seed, and is in good bloom now. The giant ox-eye daisy, *Pyrethrum uliginosum* is a mass of bloom 3 to 4 feet high; just opening, and will last into September. It ie fine for cutting. Easily raised from seed and blooms the second year from sowing. The Chinese blackberry lily (*Pardanthus Sinensis*) with its red and brown spotted flowers, and later, blackberry-like heads of seed, is a pretty plant and easy to grow. Among white flowers we much appreciate the summer hyacinth (*H. candicans*); in masses it is very effective. The showy pink sedum (*S. spectabile*) is beginning to bloom. One of the easiest of all plants to grow.

The perennial phloxes are still in their glory, so are the platycodons, and the perennial peas (*Lathyrus latifolius*), the latter very useful for cutting. The white day lily (*Funkia grandiflora*) is beginning to open; what a splendid plant it is, and it thrives well in a thinly shaded spot. The plants of the double *Achillea Ptarmica* are fairly hidden with white flowers, and it is fine for cutting. The hardy asters are now coming into bloom, and they will last with us till frost comes. We grow a great many kinds of them both for cut flowers and to plant out in wild and unkempt places, and we have raised thousands of them from seed this spring for this purpose. Of the globe thistles (*Echinops*) *Ruthenicus* is the handsomest we have; its flowers are blue, in globular heads; *sphærocephalus* has pale blue heads. What a splendid vine is *Clematis Flammula!* It is a vigorous healthy grower, and has myriads of fleecy white, fragrant flowers. It is a good arbor plant and fine for covering stumps of trees.

Our gladiolus are making a fine show; some of the Childsii varieties are superb.

In the way of lilies we have a fine display of single and double tiger lilies, they are planted in large masses and just now you could cut thousands of blossoms from them. *Lilium Wallacei* does well with us, but the rabbits are so fond of it that they have nibbled off most all of the flower spikes. *L. Leichtlini* is flowering well with us, what a pretty lily it is; *L. superbum* is about past, but *auratum* is in fine bloom still. By growing a few varieties of *auratum* one can prolong its season considerably. The *speciosum* lilies are ready to open and we expect a great show from them for we grow them in great quantity. DAVID FRASER.

Mountain Side Farm, Mahwah, N. J., August 10, 1896.

FLOWER GARDEN NOTES.

HELIOPSIS PITCHERIANA. For a lazy man, a busy man, or a man infected with the bicycle microbe, whose devotion to the wheel does not allow him much time for the delights of the garden, this would appear to be an ideal plant. Indifferent as to soil, and withstanding drouth well, it seems to require no attention but to be tied to a tall stake. It grows about four feet high, and its profusion of large yellow flowers, produced nearly all summer, are very showy. The individual flowers last for weeks. Unlike the Helianthus family, which is badly infested with worms, mildew and black aphis, the heliopsis appears to be free from insects, and its foliage is at all times clean and healthy. It is perfectly hardy.

KOSTELETZKIA VIRGINICA. Another idol shattered! This plant was introduced a few years ago with a blare of trumpets, and is still posing as a novelty in some catalogues. I planted six *large* field-grown roots last April in a show bed, expecting from the description something exceptionally fine, and right here is the exasperating part of the failure of the catalogues to tell the *full* truth about plants. The kosteletzkia grows about three feet or so high, but has no beauty whatever as regards foliage. As a bloomer —well! The flower is nothing but a diminutive hibiscus, of a light pink. My plants are full of buds, yet there is never more than one flower open at a time, and like all hibiscuses, it remains open only part of the day, and that is the end of it. Having no stem it is of course of no value for cutting. And this is the famous "Pink Beauty." [In GARDENING, March 1, '95, page 178, we told you it was a wild plant, and that "as a cultivated plant we know nothing about it." If it had the merits of *Trillium grandiflorum*, *Hibiscus moscheutos* or *Lobelia cardinalis* you might have rested assured that GARDENING would have tried it long before.—ED.]

CROTOLARIA RETUSA. This is a pretty low growing plant, bearing yellow pea-shaped flowers If planted in masses I should imagine the effect would be quite brilliant. I do not know whether or not it would flower the first year from seed, as I procured well started plants in May, and they have just commenced to bloom. It does not seem to be particular about soil, and thrives well with the care usually given to ordinary annuals. The foliage is clean and healthy.

JAPANESE MORNING GLORIES. On receiving last year from the Editor of GARDENING the box of beautifully variegated leaves I made up my mind to have this year fully as handsome a show. In this I have been much disappointed. Seeds were procured from the seedsman recommended by GARDENING. Planted out in the open ground in May they germinated readily and are now about eight or ten feet high. I have many plants, with all kinds of exposure and soil, and yet with the exception that some are

light yellow green (that is, the whole leaf) there is no variegation whatever. They are very healthy and are now flowering. Is it possible the variegation will come later? [No, the variegation is present from the first, at least it was so in our plants. We are heartily glad wesent you the box of leaves, they were living proof of how splendidly variegated these plants are, that is, when you get the variegated ones.—Ed.]

L. C. L. JORDAN.

Bergen Point, N. J., Aug. 10, 1896.

DANDELIONS IN LAWNS.

The lawn about my country residence embraces about twelve acres, it is well filled with young trees and beds of shrubbery. It was graded and seeded with grass about five years ago. It has been customary to cut this grass with a horse lawn mower about once in ten days, beginning about April 20 to 30, each year and stopping about October 1. The first year or two dandelions appeared here and there and were pulled up root, stock and branch, but as there were neglected farm lands adjoining, they came in increasing numbers each year until last summer my l wn was almost ruined by their immense numbers, there seemed millions of them, and they had become exceedingly wary in their growth. They seemed to know just when the time came around for the lawn mower to pass over them. Instead of long upright leaves and flower stalks, they all had long narrow leaves lying close to the ground. The flowers would bloom with such short stalks that the mower passed over them without injuring them, and then the next day up would start the stalk, ripen its flowers from its ball of seeds and be ready for the next round of the mower to scatter them in the most perfect and aggravating manner. I was in despair, inquired of everyone as to how to eradicate them, and had but one universal advice, dig the roots up. It was absurd; in a little 20x50 garden it might be done; but with millions scattered over twelve acres it was an impossibility.

When therefore, the present summer opened, I looked at my beautiful lawn with uncomfortable forebodings of still greater disfigurement. The first crop of flowers came in all their beauty, and they are pretty, anywhere but in a well kept lawn, but each successive week their number became less and less, and to-day there is not one to be found in grass or shrub bed. It is almost like a miracle, for the weather has been most favorable for their unlimited increase.

I can account for it in one way only, and offer the suggestion for what it is worth. The lawn has this summer been cut more frequently, once a week, and as closely as the cutters will work, not enough leaves have been left to keep the roots alive, and my lawn is clean.

WM. H. S. WOOD.

Malvern, Greenwich, Conn., August 1, 1896.

SOME GOOD HARDY PERENNIALS.

Every garden must have some hardy perennials, that is law, but what ones to get and have is sometimes a puzzling question. The following are indispensable in every well filled garden; we want them for their own outdoor beauty, also to supply us with blossoms for our dwellings, and they cover all the season from spring to fall.

SPRING ADONIS (*A. vernalis*) has large bright yellow blossoms in early spring.

CORYDALIS NOBILIS, yellow, blooming in spring, and perhaps the best of its genus for general adoption.

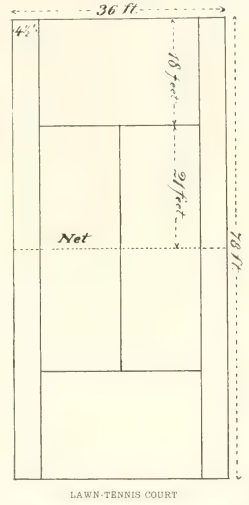
TRILLIUM GRANDIFLORUM is the large white-flowered trillium we illustrated on front page of GARDENING. It is a beauty and well worth growing.

LUNGWORT (*Mertensia Virginica*) with blue panicles of pretty flowers in spring.

BLEEDING HEART (*Dicentra spectabilis*), arching sprays of pink heart-shaped blossoms in spring and early summer.

PÆONIES in variety. Begin with the old scarlet and pink ones, and the double Siberian *tenuifolium*, and continue with the finest doubles of the Chinese varieties.

GERMAN IRIS in variety in May and June.



LAWN-TENNIS COURT

COLUMBINES, especially the Rocky Mountain blue (*Aquilegia cœrulea*) and yellow (*A. chrysantha*).

ORIENTAL POPPIES, large, vividly brilliant scarlet flowers.

FRAXINELLA OR GAS PLANT (*Dictamnus*) blooming in June. Both purple and white varieties. A never-dying perennial.

TORREY'S SCARLET PENTSTEMON (*P. barbatus* var. *Torreyi*) with long wands of scarlet tubular flowers in July. [Does fine on clay land.—ED.]

CHALKPLANT, often called BABY'S BREATH (*Gypsophila paniculata*) big cushions of misty white flowers in summer.

GAILLARDIA, the *grandiflora* forms are the best; their blossoms are large, yellow and brownish crimson, and fine for cutting.

JAPAN IRIS (*I. Kœmpferi*) with very large showy flowers from June into July.

PYRETHRUM ROSEUM, single and double in early summer; beautiful as garden plants, and splendid for cutting. All colors from crimson to white.

DELPHINIUMS. Get the best strain of seed possible of the hybrid delphiniums and raise a goodly number, for they are the best blue flowers we have got and they are bold and beautiful and good for beautifying the garden or for cutting.

MISSOURI EVENING PRIMROSE (*Œnothera Missouriensis*), of prostrate form with very large bright yellow blossoms in summer.

PHLOXES (*Phlox paniculata*). These are now in good bloom and their variety is legion. Get pure white, pure pink and deep vivid pink colored ones, and particularly avoid purple ones.

SUNFLOWERS. Get *Helianthus multiflorus* and its double forms, they bloom all summer and are fine for cutting; *H. lætiflorus*, exceedingly profuse and pretty as a garden plant, but the blooms wilt too soon when cut to be of much avail for this purpose; and for September and October use don't forget to have *H. Maximiliani*, it is fine.

LILIES are so numerous and beautiful that we can hardly restrict ourselves to a selection. But get the orange lily (*croceum*), Thunberg's lily (*elegans*), Hanson's lily (*Hansoni*), Bateman's lily (*Batemanniæ*), meadow lily (*Canadensis*), American swamp lily (*superbum*), Ascension lily (*candidum*), auratum lily, though often uncertain, tiger lily, Fortune's tiger lily and Wallace's lily for late. And be sure you get a good many of the Japanese *speciosum* lilies, as *rubrum*, *roseum*, *punctatum*, and *album præcox*; they are superb for garden decoration and we have nothing prettier or better than they as cut flowers.

JAPAN ANEMONES (*A. japonica*) red and white, especially the white one you should have lots of, for they are lovely and in bloom from August till October, a time when we need all the pretty flowers we can get.

JOHN DUNBAR.

Highland Park, Rochester, N. Y.

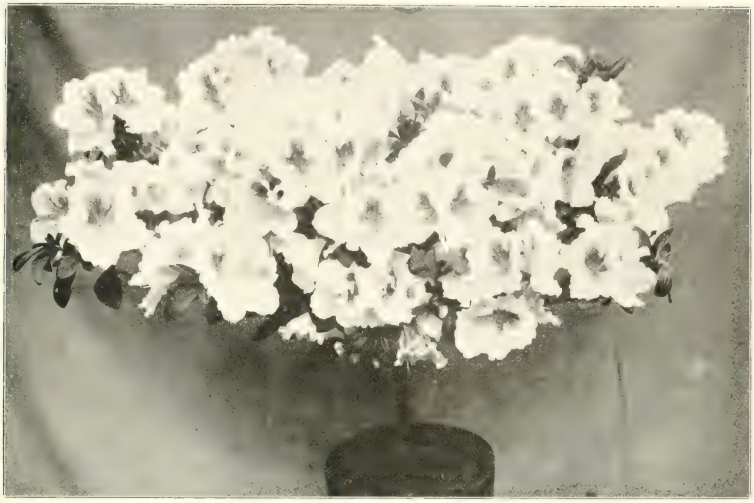
LAWN-TENNIS COURT.

The total length of the court should be 78 feet divided into two courts of each 21 feet in length, and two of each 18 feet in length, on opposite sides of the central line where the net will be stretched across. The width of the court is 27 feet, and together with the outer belts of 4½ feet each make a total breadth of 36 feet. The net at the sides should measure 3½ feet, and in the middle 3 feet in height. Service line is 21 feet distant from net. The above is from the *Gardeners' Chronicle*, and is exactly what we have been using for many years.

NEW CANNAS, NOTES ON.

Among the red varieties, Chicago, Columbia, Flamingo all continue very satisfactory. In addition to these Papa Canna is proving extremely good; its color is fine, height three feet and its enormous clusters of bloom are produced freely and early; its spike droops in the center of the truss, but I do not consider that this detracts in the slightest from its beauty. Alex Billard is gorgeous, it may be described as a sun-proof Pierson, for while Pierson washes badly this year Billard retains its brilliant color and has no bad faults of growth or habit. E. G. Hill is also showing up very fine; it is brilliant in color, very erect and sturdy, and is one of the showiest in the parks. In the red and gold class of course Italia leads all others for size and beauty; it is marvelous and a delight to the eye; the flower measures 4 to 5 inches across the face, and the petals are deeply overlapping, it is totally new and distinct in form. The only improvement that we can suggest for this gorgeous Signora is a heavier texture.

Souv. d'Antoine Crozy is making a fine record; it stands the sun well, and is



SMALL AZALEA

very showy and bright. In yellows, our other Italian importation, Austria, easily leads; it is quite as fine in form as Italia, almost as large, clear in color, and a most beautiful flower in every way. Prima is extremely good; dwarf free, bright and clear; Lemoine's two dwarfs, Comete and Cote d' Or are both very useful for edging. In dark foliage sorts, Egandale is grand, and though not new, is not used nearly enough. It is early and the flower is large and very brilliant and one of the most lasting under sun and rain of any of the family. S. A. H.

Richmond, Indiana.

FINE AURATUM LILIES.

I stepped into the private garden of the veteran nurseryman, Mr. George Ellwanger of Rochester, the other day to see his auratum lilies, and they were grand, the finest I have ever seen. I counted over fifty blooms on one stem alone. Mr. Ellwanger says he planted 180 bulbs there last fall, giving the ground no extra preparation whatever for the lilies, and here's the result. The soil is good rich garden earth, with some leaf mould added. The bulbs were planted six inches below the surface of the ground and a little sharp sand put around each one. They are growing in a northern aspect under the partial or slight shade of a Weir's cut leaf maple and purple beech, where the conditions for their development have been nice and cool. J. D.

A Book About Flower Beds.—J. E. H., Colon, Mich., writes: "I am in want of a horticultural book that treats as follows: Tells how to make a pretty flower bed, shows the different cuts of flower beds, tells what kind of flowers to use, and gives all explanatory so one can understand it easily. Nothing very expensive, just medium." *Ans.* We presume you mean geometrical flower bed designs. "Designs for Flower Beds" by Geo. A. Solly, may suit you. Its price is $3, but we understand it is now out of publication. But are you aware that the most approved, modern garden taste is against that sort of thing? At the same time we believe there is a place for it, but it must be kept to itself and not spread broadcast over our gardens.

The Greenhouse.

GREENHOUSE AZALEAS.

By this we mean the varieties of *Azalea Indica* usually cultivated in pots in greenhouses. Our illustration engraved from a photograph taken last year of a plant at Dosoris shows a specimen the second year from Belgium. Many of our readers may not know that most of the azaleas grown in this country were, to begin with, imported from Europe; our florists find that they can buy young azalea plants in Belgium, Holland or England cheaper than they can propagate and and raise them, our friend Mr. James Dean of Bay Ridge, Brooklyn, alone imports about $5,000 worth a year.

Azaleas are placed out of doors over summer in some sheltered spot, and partly shaded from hot sunshine by neighboring trees or buildings, or lath slatted shades are set up over them, and they may be left outside till there is danger of frost Although these azaleas will bear sharp frosts with apparent impunity, it is not well to submit pot grown plants to frosty weather, the flower buds are apt to get injured. At Washington these azaleas are hardy and planted in the gardens as hardy shrubs, with no fear even of the flower buds being injured. The plants in pots may be wintered in cool, frost proof cellars, but never let them get very dry. A few good varieties are Verveneana, the subject of our illustration, Deutsche Perle, white; Flag of Truce, white; Iveryana, white; Roi de Holland, intense scarlet-crimson; Sigismund Rucker, rose, white and crimson blotch; Madame Joseph Verveene, rose bordered with white; Stella, orange scarlet, Eclatante, deep crimson, and Mars, bright red.

HOW TO GROW CACTUS.

A great majority of those who decide to make cactus growing their hobby very soon become enthusiasts in the cause. They must secure a good collection and all must be correctly named and healthy. I have met many such people during the last few years who have succeeded in getting together very creditable collections. The first lot of plants received was all named and of course all the plants were named correctly (?). But others came from other sources and something was found to be wrong somewhere, or a brother cactusian comes in and shakes all confidence in the correctness of names of many of the plants because they are not named like his. This awakens a determination on the part of the owners to find out what is right and they determine to visit places where named collections are kept. How easily such visitors may be detected, for if they know in what part of the place such plants are kept thither will they wend their way, passing everything else by unnoticed be it ever so beautiful or attractive, for to utter their own words they "came out to see the cactus." On arriving at the spot, a book containing notes most carefully collected

before starting will be taken from their pockets. In this we find recorded the number of ribs of some varieties and they have noted carefully the situation of every bunch of spines, counted the central ones, noted their size and shape, whether flat or cylindrical, straight, twisted or hooked, the color of such, the number of radical spines, their strength or hair-like weakness, the color of flower, time of opening and closing, the part of the plant from which flowers are produced and the duration of the blossom. With all this data at hand a careful investigation is commenced and after a long series of searching and dodging backward and forward from plant to plant it often turns out that but little has been done toward ascertaining the correct names.

This is one of a cactusian's troubles. But there are others which are surely laid up in store for him. How often can one hear of the success achieved by these new beginners with regard to the general health and growth of their plants, so much so that it is apt to make a veteran wonder how it is done. But in many cases, one has only to wait a few years to find that much of the ardor has cooled down and they are wondering why one plant after another will die though receiving the most careful treatment. Would that I could tell just such ones what treatment is required to secure perfect health and longevity for their prickly friends.

But never having been able to accomplish this task myself I can only speak of the treatment which affords me the most satisfactory results. First I always prefer receiving plants in the spring just as they are ready to commence growth. All uninjured plants are at once potted into shallow pots, using plenty of drainage and old sod soil made very porous by an addition of coarse sand. If the soil is just moderately damp, I find an occasional slight sprinkling is all that will be needed for some time. The plants when potted are plunged outside in a well drained bed, which is subject to perfect ventilation from all quarters. I cannot think it reasonable to place such new comers, which are generally received without their natural means of support (roots) in a hot corner on the south front of a wall or rockery, this seems to me like giving another kick to the poor fellow who is already down. Neither have I found it wise to select for them damp or shady places. Under the aforementioned treatment a healthy growth of root and plant is soon commenced, and by fall, as a general rule I expect to have a lot of fairly healthy plants with a good stock of roots to supply means for continuing health and growth.

The place I would select for wintering such plants is one which is naturally a low and damp house, which prevents the necessity of much actual watering of the plants, taking care to maintain as far as possible a low and equal temperature. Under such treatment I find my plants come out in the spring comparatively free from pest insects and healthy.

While it might prove to be very difficult to achieve great success in the cultivation of some of the species of cactus in our home windows yet there are others which are easily grown and have much in them to recommend themselves to the lovers of the curious and beautiful. In the dry and heated atmosphere of our rooms, which is so averse to the well-being of so many plants these appear to be perfectly at home, and often prove to be sources of great delight to amateurs, who find satisfaction in the constant study of the many interesting phases of plant life.

One of the most satisfactory genera of the cactus family used for window decoration is the *Phyllocactus*, the species of which are generally profuse in flowering, producing large showy blooms of the richest colors, indeed they are hardly to be excelled in beauty. One local name by which they are known here is the "Winged Torch-thistle." *Phyllocactus grandis* is one of the most useful kinds, producing large white sweet scented flowers. *P. latifrons* is a strong growing species, producing large creamy white flowers. There are also many very beautiful hybrid varieties, most of which are kept by some commercial florists.

There are to be found quite a number of species of *Cereus* which will well repay one to cultivate, but perhaps the most interesting of these are the climbing and night-blooming kinds, many of which produce large sized and brilliantly colored flowers. Among these is the well known *Cereus grandiflorus*, scarcely any plant is more beautiful than this when in bloom. *C. Lemairii*, this species may be even more beautiful than *grandiflorus* *C. Macdonaldiæ* noted for the wonderful beauty and brilliantly colored flowers. *C. nyctic-alis*, a very old fashioned but beautiful plant. *C. triangularis*, a very free growing free blooming species. *C. flagelliformis* or whip cactus. This plant with its drooping stems forms one of the most pleasing of all. There are also many mammillarias, echinocactus, echinopsis, etc., of peculiar beauty and well worth trying.

J. GURNEY,
Supt. of Missouri Botanical Gardens, St. Louis, August 6, '96.

Roses.

ROSES, SOME OF THE NEWER ONES.

Among those of recent introduction, Blanc Double de Courbet, rugosa, is one of the finest; it is dwarf in habit, with large semi-double flowers of dazzling whiteness and very fragrant. It will not be overplentiful, as it is not easy to propagate; more's the pity, for every rose grower will want it.

Belle Siebrecht is another beauty; it is just the shade of pink that satisfies the eye, bright and clear, bud pointed, flower very fragrant. Florists complain of its weak stem, but amateurs will enjoy it nevertheless.

Crimson Rambler is living up to its reputation and is assured of a permanent place in the lists, and now Germany is sending us three new Ramblers (all having rugosa blood)—a white, a pink and a yellow, named Thalia, Euphrosyne and Aglaia; they will be eagerly welcomed, for our northern climbers are very few.

Lord Penzance's sweet briers are a decided acquisition; the foliage is very sweet, and in addition they all have very beautiful flowers. No garden should be without one or more of them.

Among H. P's Roger Lambelin is a beautiful curiosity; the color is dark velvety crimson, and each petal is edged with a narrow line of white.

Marchioness of Londonderry is very fine, one of the largest of roses, very globular, ivory white in color and set in surrounding foliage close up to the calyx after the style of the lamented Puritan.

Clio belongs to the Baroness Rothschild class and merits a high place in it. Its flower is flesh color with rosy pink center, and is set in its own foliage in the most beautiful style.

The H. P. class seems to have received even more than its share of sterling additions lately, the three reds—Capt. Hayward, scarlet crimson; J. D. Pawle, darker crimson; and Chas. Gater, clear crimson—being three grand varieties that every rose lover should get and try. S. A. H.

Indiana.

NOTES ON ROSES.

The past winter and spring with their very severe and changing temperature in this section dealt severely with garden roses. This followed by weeks of extreme drouth was not only severe on new plantations, but was disastrous to an early crop of flowers. As a consequence our local rose show was the poorest for many years. With rains the later season's growth was greatly improved and followed with finer flowers. Strong growing varieties like Margaret Dickson and Marchioness of Londonderry in the newer kinds were cut to the ground line, and the first named has not produced any flowers this season, but the last named recovered sufficiently to flower well. Mrs. Harkness, although cut by the frosts severely, gave exceptionally fine blooms, although it is a plant of light growth. The remarkably strong growing and free blooming rose, Mme. Clemence Joigneaux, was cut to the ground line and many plants killed out or severely weakened as to give very few flowers.

Capt. Hayward maintained its character of strength in growth and hardiness and flowered finely; its weak point is lack of substance in its petals. Clio is extraordinarily strong in its growth and it is a free bloomer and probably will flower late in the season. That grand Hybrid Tea, Bardou Job, with its bright glowing crimson flowers, has far exceeded our expectations; the plants although killed to the ground, started into fine growth without check, and have bloomed very freely, it is a good seed bearer.

WM. H SPOONER.
Jamaica Plain, Mass., August 7, 1896.

HARDY ROSES IN BLOOM, AUGUST 11.

Among the best of the roses now in bloom are Mrs. John Laing, delicate pink and of fine form, one of the most continuous bloomers; Marshall P. Wilder, cherry carmine, quite fragrant; Marguerite de St. Amand, bright rose; Paul Neyron, deep rose, very large; Francois Michelon, deep, carmine rose; Mabel Morrison, white with a pinkish cast; Alfred Colomb, brilliant crimson carmine; Anne de Diesbach, large, fine carmine; Pierre Notting, deep maroon tinted with bright crimson, a splendid dark rose; Comtesse de Serenye, silvery pink; Rev. J. B. M. Camm, carmine rose, very fragrant and free; and Rose du Roi, crimson and very fragrant. Among the Bourbon roses Hermosa and Mrs Degraw, both pink, continuous blooming roses, are very fine. J. D.

GREENHOUSE ROSES UNDER DIFFICULTIES.

I grow roses under difficulties in a stove plant house, under ground and obscure glass. The conservatory or palm house, 25 feet high, runs out about 60 feet on the southeast side, so we do not get any sunshine until noon time at one end of the house, so with the obscure glass the roses grow weak especially at that end of house. The varieties we grow are Mermet, Bride, Mme. Hoste, Perle and Bridesmaid. But I believe the obscure glass favors them during the hot bright weather towards the end of the season, for they retain their foliage and we cut a

heavy crop of flowers during the past month, before pulling them out, though the flowers were small.

G. B. WINSLADE.

New York.

A PLEASING COMBINATION OF ROSES.—The editor of the *Rural New Yorker* has Crimson Rambler, Michigan prairie rose, and the Japanese *Wichuraiana* rose all growing together in one place over a little rock work, and he says: "All bloom at the same time and a prettier and more satisfactory combination of vines we have never seen." Also that the *Wichuraiana* rose 'seems as hardy as either the Michigan or Crimson Rambler." The beauty and appropriate companionship of the three are gospel truth, but unpleasant although it is we must admit that *Wichuraiana* isn't as hardy as we thought it was. Mr. Warren H. Manning of Boston was here the other day and rather shocked our hopes by telling us that all of the *Wichuraiana* roses in Franklin Park, except a few straggling pieces got killed last winter. It was very extensively used in the Boston new parks (Franklin) especially in covering banks, and was greatly esteemed.

The Fruit Garden.

THE FRUIT GARDEN.

STRAWBERRIES.—Set out new plantations of young runners as soon as the ground is ready; if planted any time before the end of September they will take good hold of the ground before cold weather sets in, and with a little mulching in winter there will be no fear of heaving by frost. Mark off the rows two feet apart lengthwise and crosswise, and at the crossings set out three plants in a hill instead of one. The earlier this is done the bigger and stronger the crowns will be and the finer the crop of fruit you will get next summer. As soon as you get runners enough from the old plantations, unless they are wanted for another year's crop, root them out and use the ground for celery, snap beans or beets.

RASPBERRY BUSHES.—As soon as the old canes have yielded their fruit they should be cut out to give a better chance to the young ones to mature their growth and make good buds low down on the stems. Also thin out the weakest of the current year's shoots, for a few stout, hard, well finished shoots are much better than twice as many spindled stems. Don't disturb them at the roots any more than can be helped, but be sure to keep the ground about them clean, and be unsparing in chopping down wandering suckers.

BLACKBERRY BUSHES may be treated a good deal like raspberry ones. As they are apt to get very vigorous and wide-spreading w can hardly refrain from cutting them in to within bounds so far as those that encroach or walks or neighboring bushes are concerned; if this starts a late growth make provisions for burying them in winter In this way we can save them no matter how tender they are.

CURRANT BUSHES.—So much wet weather has given these an unusually heavy branch and leaf growth and we have thinned them a good deal, enough to let the air freely in among them. This gives us good nests of fruit buds. A few weeks from now the red curra ts will drop many of their leaves, but this is only natural, the wood and buds are all right.

ORCHARD TREES.—Look out for tent caterpillars among the apple trees and get rid of them as soon as seen. The moment pear fire blight appears on the pear trees, cut it out, being sure to cut farther down than the blight shows itself. All pears not ripe or near ripe will be benefited by thinning; remove small, gnarled and wormy fruit, also when two or more pears grow in clusters remove the least desirable ones, retaining the plumpest and best ones, and leave them so that no two touch each other. Don't let fallen fruit of any kind stay long upon the ground, but rake it up and cart it to the rot, dump or burn pile, or to the hog pens. A large part of fallen fruit is infested with insects and as soon as the larvæ or worms in the fruit are mature enough they leave the fruit and enter the ground to pupate, to emerge later on as a perfect insect and go ahead with its business of propagation and destruction. The fruit that contains the worms by a wise law of nature (in favor of the insect pests) drops from the trees to the ground, so as to allow the pests to enter the earth, but if we rake up the fallen fruit and feed it to the hogs or sheep, that is the end of the larvæ.

THE FRUIT GARDEN—BERRIES.

We have had and are having an excellent crop of all outdoor berries. The weather has been very favorable to good growth and wherever the fruit set well it has perfected well.

STRAWBERRIES.—We commenced picking berries the first of June and had fruit all of the month, and they were big and good and we had a great many of them. The kinds we grow are Sharpless, which is large and prolific but does not ripen its fruits to the tip so evenly as some of the others. Jessie does well with me, the fruit is large, of good quality, and it ripens well. and the variety is an excellent cropper. Jucunda Improved did very well with me too, and is of fine flavor, but I like Jessie better. Charles Downing is good all round, especially for preserving. Then Gandy comes in when most of the others are about done. We plant a new bed every year, and this ensures a fine crop of big berries. As soon as we have secured good runners enough from the old bed, we dig it under and crop the ground with vegetables. Our new plantations will be planted in the first half of August.

RED AND WHITE CURRANTS come in after the strawberries, we grow Fay's Prolific as a red and White Grape for a white, using them for dessert as well as for jelly. Many may hesitate to use white currants for preserves because of their pale color, but they needn't, for the white currants make an excellent and beautifully colored jelly.

RASPBERRIES come in before the currants are past. I grow a good many of the Turner but wouldn't recommend it to anyone else. The Cuthbert as a red, and the Caroline as a yellow give me the best satisfaction, and really are an excellent well tried couple.

BLACKBERRIES come next. We grow the Erie largely, it is now commencing to be fit for picking. I find it a very hardy and prolific variety.

OUTDOOR GRAPES follow the berries. There is to be an immense crop of grapes this year.

GREENHOUSE GRAPES.—I have been cutting grapes from our early house since the last of June. This house was started the first of February. The grapes in our late house are just beginning to color, and we expect to have grapes till late in fall. The early grapes we are cutting are Black Hamburgh, Muscat of Alexandria and Sweetwater; the last named isn't worth growing, but we like a vine or two of it for early fruit. GEORGE DONALD.

Fairfield, Conn.

TWO BAD "BUGS."

I send you by post a small box containing two bugs. Last year they ruined my pears, but this year the cyclone blew all the pears off the trees. On one of my peach trees the wind and hail left me about a dozen fruit, but these bugs and their partners got the best of the peaches. Please tell me what they are and what to do to get rid of them, so that I can be ready for them next year. H. A. B.

St. Louis.

The larger one of the two is the "Southern June bug," *Allorhina nitida*, which is a great fruit pest. But it doesn't last long in summer, its season is brief. Its larvæ is a white grub not unlike that of the May bug so common in the north, but not nearly so destructive; the grub when dug up and exposed to light is very active in running away or burrowing into the ground again, and all of this it does on its back with its feet in the air. During the summers of '94 and '95 we had a colony of tens of thousands of these grubs at Dosoris that we were studying, and we hope entomologists of the Long Island Experiment Station are keeping it up this year, for it is the only authentic record we have of these grubs being systematically studied during a period of years There is no known means of combating or eliminating this pest except by collecting and destroying it, and that's a pretty hopeless job. The bug you sent has given us a new wrinkle as regards its habits. When it came here it was alive and pretty lively, and when we unfastened the pen box in which it was imprisoned it pushed off the lid and walked out; we returned it to its box time and time again to see it perform the same act, for there was something peculiar about it. Instead of pushing up the lid with its head as an ordinary bug would do, it turned over on its back and kicked it off with its feet!

The other or smaller bug is the Indian cetonia (*Euphoria Inda*) a very destructive pest to ripening fruit. Unfortunately, aside from gathering and destroying it, there is no known means of ridding our orchards of this evil.

TRANSPLANTING OLD GRAPE VINES.

W. R. C., Illinois, writes: "I desire to change the location of my grape vines, if such a thing is possible. They have been in their present location some 15 or 20 years. Relative to their removal, can it be done, and if so what method should I follow and what effect will it have on the bearing, etc.?

Ans. Yes, they may be dug up and removed with perfect safety, but you must expect to sacrifice a year's crop. Much depends upon the vines, whether they are long, naked stemmed ones on arbors, or short ones on vineyard poles, how much growth they carry, and so on. Let the plants alone till after the crop is gathered, and there is no further fear of a fresh growth, say Oct. 15 to Nov. 1, then cut the vine down pretty hard, and cut in the roots somewhat too, and afterward bury the vines over winter in the usual way. At unearthing time in spring, dig up the vines and transplant them. In the case of long, sprawly old vines we would rather get stout young stock and plant it, at any rate alternate it with the old plants.

GARDENING

WILLIAM FALCONER, Editor.

PUBLISHED THE 1ST AND 15TH OF EACH MONTH

— BY —

THE GARDENING COMPANY,

Monon Building, CHICAGO.

Subscription Price, $2.00 a Year—24 Numbers. Advertising rates on application

Entered at Chicago postoffice as second-class matter.

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All communications relating to subscriptions or advertisements and other business matters should be addressed to The Gardening Company, Monon Building, Chicago, and all matters pertaining to the editorial department of the paper should be addressed to the Editor of GARDENING, Schenley Park, Pittsburg, Pa.

GARDENING is gotten up for its readers and in their interest, and it behoves you, one and all, to make it interesting. If it does not exactly suit your case, please write and tell us what you want. It is our desire to help you.

ASK ANY QUESTIONS you please about plants, flowers, fruits, vegetables or other practical gardening matters. We will take pleasure in answering them.

SEND US NOTES of your experience in gardening in any line, tell us of your successes that others may be enlightened and encouraged, and of your failures, perhaps we can help you.

SEND US PHOTOGRAPHS OR SKETCHES of you flowers, gardens, greenhouses, fruits, vegetables, or horticultural appliances that we may have them engraved for GARDENING.

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THE NEW CANNAS.—We have the new cannas Italia, Austria and Burbank in bloom, and they all are big flowered, splendid beauties and good growers.

LILIUM LOWI is in good bloom at Kew. The stems are 2 feet high and carry one or two bell-shaped flowers of a greenish white color on the outside and flushed with chocolate; on the inside they are thickly spotted with crimson.

DON'T STEAL THE MELONS, BOYS.—Mr. A. W. Smith, of Americus, Georgia, a noted raiser of new melons, has a novel and easy way of getting ahead of the boys. When his choice melons are small he scratches his name in small letters on the melon with a pin; the scratch never heals up but as the melon grows in size the scratch grows in proportion and pronouncedness. As no small boy, (or big one, either, or culled gen'leman) cares to have a branded melon in his possession, he passes on to the next man's patch.

DON'T USE COTTON WOOL in packing plants or flowers. The editor of the *Gardeners' Chronicle* writes: "There is no more objectionable material for packing plants or fungi than cotton wool." And certainly it is true, still many people persist in using it. Use tissue paper or thin soft, oiled or waxed paper.

CHRYSANTHEMUM FLORA.—That this is a summer-flowering variety there is no doubt whatever since it has been producing its masses of light golden flowers for some time past. In this respect it is useful, and being dwarf as well as a most constant bloomer, renders it a favorite with quite a large number, so says the *London Garden*.

SOME GOOD PEAS.—An English gardener says than Chelsea Gem and William Hurst no two better early peas can possibly be found; to follow on use Wordsley Wonder, Stratagem and Sharpe's Queen and Autocrat for late. All of these are fine peas here too. But for flavor the Ne Plus Ultra and Champion of England are still unsurpassed; pity they grow so tall

TREE GOOSEBERRIES.—One of our readers send us a photograph of a gooseberry bush worked as a high standard that is, the stem is a clean straight stiff one 3 to 4 feet high, and at top is a bunch of branches laden with gooseberries. He appreciates the form and good-humoredly remarks, "I prefer to stand up straight when I pick my berries, and not get down on my knees to it." But our friend doesn't say anything about mildew. Our experience with standard gooseberry bushes is that they are more prone to mildew than are low stemmed ones; yes, even when the Missouri currant is the stock.

SHE SUCCEEDED.—Miss L. Greenlee of North Carolina has gone into the business of raising bulbs and kindred plants. We advised her last spring against growing tuberous begonias, cyclamen, and gloxinias, because of the difficulty and uncertainty of raising them, and further of the bother she might have in marketing them. She now writes: "I want to tell you that I have succeeded in growing cyclamens, tuberous begonias, and gloxinias, especially the latter. I am growing them in slatted frames and mean to send some tubers to show you how nice they are." Just like a woman, she had her own way anyway, and we are very glad that success has attended her.

THE WET WEATHER has been disastrous to our bedding plants; geraniums have suffered more than any other kind, and cannas less. We are lifting out the geraniums and replacing them with cannas, China asters, celosias, abutilons and other plants we happen to have a store of at hand. This is all very well in the case of beds filled with one sort of plant, but when it comes to carpet beds, and the santolina, leucophyta or other panels rot out and there is no use of replacing them with the same material, we are apt to spoil the good looks of the design. Coleuses, except in very wet places, are keeping up well, and among them all Verschaffeltii as a crimson and Golden Bedder as a yellow are the brightest and best.

TO PRESERVE MAIDENHAIR FRONDS.—Says the *Gardeners' Chronicle*: "Dry in the ordinary manner between sheets of herbarium paper under pressure, changing the sheets of paper twice a week till the sap in the frond is absorbed, then secure with narrow strips of thin paper laid across the stipes and branchlets of the frond. To give the fern fronds that are to be used in vases, etc., the desirable softness and natural gracefulness, they should, after drying, be laid in a vessel of sufficient dimensions to accommodate them when laid straight and flat, containing a mixture of equal parts, spirit and glycerine. Here the fronds should remain immersed till they are saturated, and then hung in a shady place to become dry. The spirit evaporates while the glycerine remains in the substance of the frond.

ROSY CREAM WATERMELON is a new one that has been raised and perfected by Mr. A. W. Smith, of Americus, Georgia. He sent us a specimen for trial the other day, and we all feasted on it and our neighbors feasted, and each and everyone of us pronounced it a most excellent melon, tender, sweet and of fine flavor. It was a monster and just fitted endwise into a bushel basket. The skin is evenly green, flesh solid, white or rather creamy white faintly tinged with pink, and the seeds are black. It was a beautiful example of what fine perfection watermelons attain in the south. Mr. Smith writes: "After six years' work with it I deem its character is fixed. The one sent you is about the smallest I have gathered, the patch being not only the finest I ever gres as to size but the fin st I have ever seen. One melon weighed 58¾ pounds, several weighed 55 pounds each, whilst few went below 40 pounds. I gathered two from one vine, one being 47 and the other 41 pounds. These weights were not obtained by pampering but in an acre patch as all melons are grown."

FANCY-LEAVED CALADIUMS.—For filling our conservatories in summer these are very useful, and when the cold weather comes they go to rest and are stored away in some dry warm place and their room is given over to winter blooming plants that during the summer months, are undergoing an outdoor course of treatment to better fit them for their indoor duties. But last April, finding we had very few caladiums, we sent to John Saul for some hundreds of roots. They came in due time, were planted in sand on a greenhouse bench till they began to grow and then potted singly and kept in the greenhouse. Every tuber started and now we have a fine lot of plants for a quarter of the price we would have to pay had we imported them from Europe. We got all of Dreer's collection too, but had to wait for them till most midsummer till their shipments from Brazil should arrive. Several of them are now in open leaf and grand, and the others have started into growth. We get the tubers in a dormant state as one does tulips, and considering how very showy and useful they are, and cheap, we feel assured many of our readers who have never grown them may like to try them next year. There is a little confusion in the nomenclature and many of the names are in Portuguese, but never mind that, if you want rich coloring, you can have it in these splendidly marked plants.

THE PLAN OF THE GLEN COVE R. R. STATION GROUNDS is an admirable design; not only does it look well on paper but it treats the ground in an excellent way. About six acres are contained in the little park and roadway. Those of our readers who have visited Dosoris may remember the wretched old railroad station at Glen Cove and its uncouth surroundings,—the first three houses after leaving the station being three saloons, but now there are two stations in the village. The old one is now called Glen Street, Glen

HUNTINGTON FALLS IN GOLDEN GATE PARK, SAN FRANCISCO

Cove, and the new one Glen Cove. The new one is a few hundred yards farther east—on the same line—than the old one, and is a beautiful and commodious structure, surrounded by a very lovely, undulated country. The main approach to the station is 100 feet wide, thus affording ample sidewalk and carriage room, and plenty of shade, a very essential foresight, for all that part of the country is being rapidly occupied by substantial residences. Good roads and beautiful surroundings about a railroad station are a great inducement to home-seekers to come and settle in the neighborhood. So patent was this to some of the property owners near Glen Cove that they subscribed the means to build the new station, and gave the land and money for the roads and park, and they further emphasized their foresight by calling in a good landscape gardener to plan the grounds rather than try it themselves and make a botch of it. The plan gave most excellent satisfaction to the railroad officials and property owners, and too, to the architect of the station building.

GARDENING IS APPRECIATED.

I am a very new subscriber to GARDENING, my first number having just come to me, and I find that in various departments it is what I have wanted for a long time. For instance, your answer to the chickweed query fills a long felt want with me, and your whole paper appears to be more practical and really useful to an amateur that any periodical on the subject I have yet met with.

Referring to a paragraph on *Aquilegia cœrulea* the enclosed cut may be of interest to you. The seed is highly recommended by the firm. You may possibly not know them, but to an Englishman their name is in itself a guarantee where flowers are concerned. F. H. J. R.

St. John, N. B., July 30, '96.

[We know the seed firm you name well, in fact are personally acquainted with the senior member of it.—ED.]

HUNTINGTON WATER FALLS IN GOLDEN GATE PARK, SAN FRANCISCO.

Our illustration is a fine example of artificial naturalness in gardening. Look upon this magnificent waterfall dashing over the rocks, and with a setting of trees and rocks on either side as if it were at the head of a gorge in the mountains, and still it is only an artificial waterfall. What wouldn't we give for such a waterfall in Schenley Park! We read in the report of the park commissioners of San Francisco: "The park does not have its river running through its midst like Fairmount Park, Philadelphia, but it has its beautiful artificial lake and its magnificent waterfall—the only artificial waterfall in a public park on the continent—which excites the wonder and admiration of strangers and citizens alike."

STOPPING HILL SLIDES OR SLIPS.—In Schenley Park are some very deep ravines with steep banks between 200 and 300 feet high; the land is very tough, soapy, red clay, and shale rock, and it is uneven and springy. Roads have been cut and graded about the middle along the face of some of these banks, and at the top on others, but we are having a great deal of trouble with landslides; sometimes a piece of the hillside will slip down from the top or from near the top, big trees and all moving down with it. These slips don't slide right from the top down into the bottom of the ravine, simply a slice of the hillside slips down the hill a piece, but road, trees, and all go with it. The first thing to find out is what causes this slipping, and the next is an effectual means of stopping it. Water causes it; drainage alone will stop it.

GRAPE ROT.—J. B. L., Canonsburg, Pa., writes: "The grapes in this section, especially the Concord, are rotting on the vines. They first show a delicate brown spot, then half the grapes on a bunch will turn brown over. Is it because of the continued wet weather?" *Ans.* It is one of the grape rots and no doubt aggravated by the excessively wet weather we have had all this summer. For this season the grapes are past all recovery, the rot will run its course, nothing that would not destroy the grapes would destroy it. Cut off, gather and burn up the diseased fruit. Begin early next year, and spray the vines with Bordeaux mixture even before the leaf buds burst, and spray again several times during the summer. This acts as a preventive of rot, not a cure for it. Also bag your grape clusters just as soon as the flowers begin to drop; this also is a partial preventive.

GREENHOUSE GRAPES.

We began cutting ripe grapes July 24 from vines started March 1 last. The first to ripen was Black Hamburgh; Madresfield Court Muscat is ripe now, and Muscat of Alexandria will be fit to cut in about a week from this; late keeping varieties, such as Alicante and Lady Downes, won't be ripe till near the end of September. The vines were all started into growth at the same time, and the house containing the Muscat of Alexandria and late varieties was kept the warmest.

About syringing: I only syringe the vines after they are done flowering, and this is to wash off the old flowers.

About ventilation: All summer the ventilators were shut up close at night, shutting early in the afternoon to save all the sun heat possible, it is better than fire heat, but every bright morning I opened the top ventilators a little at five o'clock and a little more about seven o'clock, opening a little at a time like this at four distinct intervals before the ventilation is full on. When the sun comes out warm in the morning and the greenhouse is allowed to get pretty hot before ventilation is given, and then the ventilators are thrown wide open to cool the temperature and admit fresh air, mildew is sure to enter and all the evil of shanking, scorching, and mildew; now don't do that, in ventilating open early and a little at a time, and shut up early and a little at a time. [Bad ventilating, like bad watering, is very injurious to greenhouse grapes and other indoor plants. Had Mr. McWilliam neglected his ventilating he never would have won, as he did, the gold medal for grapes at Boston.—ED.]

When the berries commenced to color both side and top ventilation was left on day and night, commencing with a little at first and gradually increasing it till all is left open when the weather is dry.

About watering: I believe in giving grape vines a deal of water at the root. I never yet have seen grape vines that were hurt by over watering before the fruit began to color, providing the drainage, either natural or artificial was good; but I have seen many a house of grapes suffering for want of water. The la t heavy watering I gave our vine borders was when about one fourth of the berries were showing their ripening color. After that the borders get a good damping every bright morning, and the pathways two or three dampings in the course of the day, and the borders in the houses where the fruit is ripening get a heavy damping down every bright morning, and I will continue to do this till the weather gets cooler. It is a mistake to withhold water from the vine borders too soon.

Firing: I am using a little fire heat on cold or damp nights. One summer I didn't do this so was caught napping. I had given the borders a heavy watering as above described, the borders being all indoors, and no heat was turned on that night and the weather sprung up quite cold and damp; the following day was bright and warm and I got several bunches of grapes scalded. The airing was in no way neglected.

I am glad to say that not a berry of the Madresfield Court has cracked with me this season, and they are past that stage now. You know how few gardeners grow this variety and all because of its inclination to crack its berries when they are coloring. Some growers keep their borders dry, but I find this is a mistake. Keep the borders open, well cultivated on surfac , and well watered, and have a sweet, clear atmosphere in the house. Stagnant moisture to settle on the berry when it is swelling is sure to injure it. GEORGE McWILLIAM

Whitinsville, Mass., August 11, '96.

The Vegetable Garden.

OUR VEGETABLE CROP.

Our seed sowing is over for this season and we are now engaged in destroying the weed by keeping the cultivator and hoe in use when admissible, and hand pulling of weeds in crops where cultivation has ceased.

All past plantings should have been noted both in trial book and by the use of marking sticks so that we may enjoy noting results of the different sorts.

Our early bush beans are past, we were favorably impressed with the New Stringless, a green pod sort of recent introduction. We prefer the Thorburn Valentine Wax and the Improved Prolific Black Wax to the Yosemite. This last is not productive with me. For a later crop the old Refugee is most productive, of good quality and fine shape. We were particularly impressed with the good points of the Chelsea pea, it being earlier than the Gems, with a longer pod, beautifully curved and well filled with peas of delicious quality. [We grew it some years ago, as soon as it was sent out and noted it as an A 1 dwarf variety.—ED.] We are now getting the first of our tomatoes. The Early Red Apple now known by its new name the Early Michigan, pleases us better than many of the other early tomatoes.

The Pride of America from Frank Ford & Son was the earliest sweet corn out of a dozen extra early sorts, the White Cory and Marblehead giving a larger ear but two days later. The Melrose, a new sort following just after the Cory has an ear much larger. This corn is of fine quality and no doubt will supersede the Perry Hybrid among market gardeners Our medium early sorts are not yet in an edible condition but are promising a good crop. In making a trial of Lima beans we planted 12 sorts comprising 2 hills of a kind. One hill of each sort we planted the beans eye down, the other hill was planted flat. All the hills planted flat (with one exception) came up better and made a stronger growth while young than those planted with the eye down. So in the future I will save labor by planting Lima beans flat. [We have always noted that the only advantage of planting Lima beans on edge or eye down is in early sowing or wet weather, the beans are less liable to rot when set edgewise than when flat.—ED.]

SILAS L. ALBERTSON.

Market Gardener, Long Island, August 7, '96.

GOOD LETTUCES.—M. F. M., Detroit, writes: "I wish you would tell us how to grow solid heads of lettuce so as to rival that grown in the markets in appearance and flavor, that growing in my garden having little heart and getting bitter almost as soon as ready to be eaten." *Ans.* Flabby or soft-hearted lettuces are a good deal a matter of variety, and not infrequently of ill-selected seed. Read the article on lettuces in GARDENING, page 364, August 15, '95; it will give you the plain truth as regards varieties of lettuces and their behavior in summer. Lettuces to be good should be grown in rich, moist, clean and well cultivated ground, and from the moment the seed germinates till the lettuce is cut for use, it should be one unchecked rush of

[CONCLUDED PAGE 366.]

Our 1896 STRAWBERRY **McKinley.**

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Pot-Grown Plants Ready Aug. 1st.

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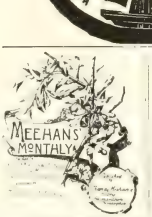

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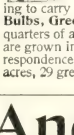

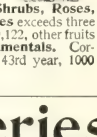

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growth. You can grow as good lettuces as anybody if you will give them as good cultural conditions, there is no secret in their cultivation. In hot summer weather we cannot have the good lettuces we can get in cooler weather. In summer after thoroughly preparing the ground we sow the seed thinly in the rows where the plants are meant to remain and heart, thinning the seedlings to the proper distance apart. This does away with the check caused by transplanting, and by good soakings of water in the evenings and scarifying the ground in the morning with a hoe or rake we never fail to get fair lettuce even in summer, but not as solid hearts as in spring or fall. Of course we select the coolest and moistest piece of ground available for the crop.

MELONS AND BEANS; PINCHING THE ENDS OF THEIR SHOOTS.—L. S. W., New York, asks: "Would you kindly inform a reader of your paper if any advantage is derived from pinching the ends of melon vines and Lima beans?" *Ans.* Some years ago there was quite a little stir raised about this same question, and we gave it a good deal of practical attention. As regards the Lima beans it didn't do a bit of good either in rendering them early or productive. Nor did we find it benefit melons much, that is, where the melons had plenty room to spread themselves; at the same time it did hasten the swelling of the fruit. In the case of greenhouse melons and Telegraph cucumbers we always made it a point to pinch the ends of the vines after some fruits were set, also to pinch off any laterals that we did not need for more fruit or good foliage. But as regards open air crops we don't think it would pay.

Miscellaneous.

A NEW WHITE FLOWERED SPIRÆA.

We send you in another cover, a few sprays of *Spiræa tomentosa alba*, a beautiful white form of the pink, which we have discovered, and so far as we know it is entirely new to the trade, though of course it was botanically reported long ago. It is especially fine massed with the pink. We find it very floriferous and its more open spike makes it more showy than the type. WM. H. HARRISON.

Lebanon Springs, N. Y.

The sprays of bloom sent to us by Mr. Harrison were large and very beautiful indeed, and the blooms quite white, and we welcome this new hardy shrub to our gardens with much pleasure.

THE JAPAN WINEBERRY has again been so beautiful as a shrub and satisfactory as a fruit that I again feel constrained to say a good word for it. It stood last winter—10° below zero—here much better than did Cuthbert, and it has been loaded with fruit this summer. Frequently with three other kinds of berries on our table the wineberry is the only one that is eaten. Still I cannot advise anyone to plant it largely, because it does not seem to do equally well in all places. It is a great favorite with us, however.

NICHOLAS HALLOCK.

Queens, L. I., July 28, '96.

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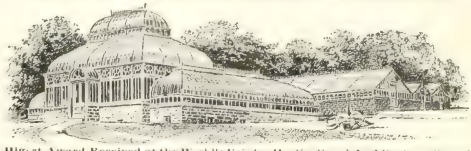

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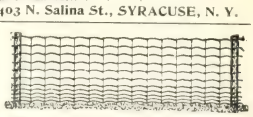

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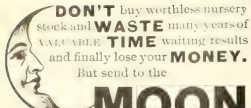

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THE HOME OF M D. ESHLEMAN, FRESNO CAL

Landscape Gardening.

MISS ESHLEMAN'S RESIDENCE, MINNEWAWA VINEYARD, FRESNO, CALIFORNIA.

Ten years ago this place was simply a house set in the drifting sand, but as you will see in the photograph sent to you [and from which our illustration has been engraved —ED.] sand need not deter anyone who loves his home and is willing to apply himself to beautify it, from growing trees and shrubs and vines, and tranforming a desert into an Eden. I had some of the sand removed from about the house and the garden and four feet deep of good red soil hauled in and scrapings from an old corral mixed in with it, also some sharp sand from the ditch was added to keep the red land from baking. That is all the preparation the ground had.

You will observe the luxuriance of the vines. At the corner alongside of the steps, low down, is English ivy. Next comes a prairie rose that I got under the name of Prairie Belle, then comes the light lavender wistaria, on the corner is a golden-netted honeysuckle, then a few walnut leaves from a plant that grew up without aid and is cut down every year to the ground, then comes two roses—Waltham Queen and Devoniensis, and after them come a plant of *Solanum jasminoides*, a Gold of Ophir rose, two more solanums, then the pathway, and beyond it the light blue *Plumbago Capensis*, then another plant of solanum; between the awnings is another golden netted honeysuckle, and next to it the white blooming Chinese wistaria. Further around come three Marechal Neil roses and a climbing La France rose, then three Banksian roses take up the end of the side of the house. I am budding other kinds of roses on the Banksians and find they do nicely. The tank house at the end of the residence is also covered with vines; on it I have *Clematis crispa* and eastern grape vines.

And an adjoining brick building is clad with moon flowers and Japanese ivy.

At the north side of the house tall palms stand in a wide circle of roses. The roses on the outside are Perle des Jardins, next American Beauty, third row is Mme. Honore de France, and the inside mass is of Prince Camille de Rohan. All of these are healthy and grow finely. In trying to make my roses grow I have trenched a couple of feet deep between them, avoiding cutting their roots as much as possible, and filled in with fresh earth, and have also given them, late in summer, heavy applications of weak manure water. Every year I find myself taking out the weak plants from these beds and filling in some strong ones. The roses removed are put out in fresh ground and make a strong growth, showing plainly how beneficial a change of ground is for the queen of flowers.

The La France rose makes a beautiful hedge, we have 180 plants of it used in this way.

We have planted a lot of the Texas blue grass and hope to make a lawn of it next year, as the ordinary Kentucky blue grass will not stand our hot sun.

Among the other conspicuous plants in our garden is a twelve year old eucalyptus about 70 feet high, a handsome magnolia about half that height, and some fine oleanders. We raise the oleanders in this way. We cut the wood twelve to eighteen inches long, and plant these pieces with a crow bar, they rarely fail to grow. We prefer to cut the bushes back to the ground every five or six years, and keep them topped back, as the bloom is finer on the young growths.

Fuchsias and heliotropes are not quite hardy; they need the protection of lath houses to grow them to perfection. Most of the hardy shrubs do well, notably mock orange and crape myrtles.

M. D. ESHLEMAN.

Fresno, Cal., August 20, 1896.

WALKS AND DRIVES IN PRIVATE GROUNDS.

In all places of sufficient extent or pretension to invite artistic design in the laying out of the grounds, the plan of the necessary walks and drives calls for careful study, in order to combine the greatest convenience in use with harmonious relation to the grounds as a whole. Even on places of only a few acres it is well to consider and sketch in advance of construction the elements of a satisfactory working plan of the roads and walks. Position and alignment depend chiefly on local conditions, but some general rules are more or less applicable to all cases, such as utility, convenience, proportion and construction.

For walks in nearly constant use, flagstones are preferable to gravel, especially in the immediate vicinity of buildings. Where flagging or concrete is too expensive, gravel is the material most usually available. Such a walk should have a foundation of 6 to 9 inches in depth, of stone chips or coarse gravel, to give it proper drainage in wet weather. The surface material should compact readily by rolling or by travel. The gravel must be fine enough not to be harsh or gritty under foot, and yet not so fine as to be slimy after a shower. A slight crown on the middle is an advantage, and paved gutters should be provided if there be any stretch with a steep gradient. The width should be determined by convenience in use, 4 feet being required for two persons going abreast or passing each other but greater width may be demanded by other conditions.

Winding walks for pleasure only across open lawns, or along their borders, are unnecessary if the travel on such lines can be sustained by the greensward without damage. Walks made for show only are in bad taste because worse than useless. Such walks are sometimes surfaced with small pebbles of nearly uniform size, round, smooth and clean, but so loose that nobody can walk on them, until by neglect they become encased and cushioned with weedy grasses. All gravel walks in places where frequent hoeing and stirring are necessary to check such weeds are evidently of little use, and are of no value for ornament.

In private grounds walk and drive are often happily combined in one. The smooth wheel track makes an excellent path, and there is always room to give a vehicle the right of way without any risk of collision. Where no special advantage can be gained by using a separate path there is no incongruity in walking on the drive.

The proper width of the drive is determined by the conditions of its use. On short stretches where vehicles have no occasion to pass each other, eight feet may suffice, but otherwise fourteen to eighteen feet may be necessary, according to the general proportions of the adjacent grounds. Where a drive is so narrow as to confine the travel to one line, a gutter like groove will be worn along its center, if "one hoss shays" are in general use on it.

Such drives are usually constructed with a foundation of stone spalls on coarse gravel and surfaced with finer gravel or finely crushed stone. The cases are rare where a substantial macadam structure is built, but the principles governing the macadam process should be followed as closely as circumstances will permit. These may be briefly stated as a guide to the inexperienced.

The depth of structure should be sufficient when firmly compacted to support without yielding the heaviest loads likely to pass over it and to withstand displacement by frost. This will depend largely upon the nature of the subsoil and the drainage conditions in wet weather. The common depth for local drives varies from six to twelve inches, but there may be conditions where a depth of 18 inches is necessary. It may be naturally supposed that a depth of 18 inches is only three times as strong as a depth of 6 inches, but in reality it is nine times as strong. The pressure of a load spreads through the roadway in the form of a cone with its apex at the wheel. The area of the base of this cone increases as "the square of the depth." Thus if the depth of "macadam" be 6 inches the weight at the bottom will be spread over 36 square inches. A depth of 12 inches will be four times as strong and the bearing surface as the bottom will then be 144 square inches and so on.

When the structure is given a depth of 12 to 18 inches the bottom half is usually built up with rough stones and spalls compactly placed, and the interstices filled with small stones. Over this to the surface grade is placed one or more layers of stone broken into angular cubes of one to two inches across. This is thoroughly rammed or rolled into place, and then covered with a thin layer of fine gravel, or fine screenings from a steam stone crusher. Where work of this kind is now done on a large scale the macadam stone is all broken by machinery, and the material is thoroughly compressed by a steam road roller of 18 to 20 tons weight. Sprinkling carts are also used in further compacting the surface layer, and thus a smooth and hard driveway is at once secured.

WM. MCMILLAN, Supt. Parks.

Buffalo, August 17, 1896.

BOOKS ON LANDSCAPE GARDENING, p. 356, W. H. C., Albany, N. Y., writes: "Would not 'Scott's Suburban Home Grounds" answer the purpose? My edition is of 1872, 618 pages, 200 illustrations, published by D. Appleton & Co. The present price, I believe, is $2.50. There is a later, more expensive, work by J. Weidenmann, at $10. *Ans.* Yes, in a measure; both are useful and instructive books.

Trees and Shrubs.

YUCCA TRECULEONA.

(Synonyms: *Y. agavoides*, *Y. concava*, *Y. contorta*, *Y. cornuta*, *Y. revoluta*, *Y. undulata*, *etc.*)

Among the native plants of the southern states which are conspicuous for their tropical appearance, the yuccas lay claim to their value in landscape gardening, but they have heretofore been rather neglected and therefore valuable material left out, which if more generally used would add a pleasing feature to many gardens.

The *Yucca aloifolia*, commonly called Spanish bayonet, is the hardiest of the arborescent species of the south; it is found as far north as the sea coast of North Carolina, where the temperature in winter sometimes falls many degrees below zero, but granting that the influence of the sea is often very marked upon the resisting power of plants against excessive cold, and thus extending the natural habitat of some species much farther north along the sea coast than they are found inland; still most of these species can be successfully cultivated at the same latitude in the interior sections if planted where somewhat protected from cold winter winds by surrounding buildings or windbreaks of coniferous trees. Thus *Yucca aloifolia* can stand the winters of middle Tennessee and possibly farther north.

But the handsomest species, which in point of size and beauty of its inflorescence, surpasses all those we have tested here during 35 years past is *Yucca Treculeana*. A specimen planted in our grounds 18 years ago has now attained the following proportions: height 12 feet, spread 14 feet, diameter of body at 12 inches above ground 16 inches, body to first branches 3 feet, number of branches 5, each of the latter subdivide in two to three, thus affording this year 15 enormous panicles of ivory white flowers. It is a plant of noble appearance at any period of the year, but especially so during the early part of April, when it is clothed with its wealth of flowers. For many years past it has produced its flowers with singular regularity, beginning early in April and lasting three weeks. A plant surrounded with camellias and azaleas all bedecked with a profusion of bloom form a glorious floral combination which may be had in all southern gardens. *Yucca Treculeana* has withstood here a cold of 5° above zero; it is likely that it can stand a much lower temperature, being a native of northern Mexico and some sections of northern Texas. Perfect pollination, either natural or artificial has so far failed here and the plant has remained barren of fruit. Sound

GROUP OF YUCCA TRECULEANA AT FRUITLAND AUGUSTA GA

seed is difficult to procure and this may account for the scarcity of this plant being found under cultivation. Owing to its robust constitution it can doubtless be successfully cultivated farther north than any species of the arborescent type.

P. J. BERCKMANS.

Fruitland, near Augusta, Ga., August 11, 1896.

[In a private letter accompanying the photograph from which our illustration was engraved, Mr. Berckmans tells us "The conifer standing on the left is a magnificent specimen of *Juniperus oblonga pendula* now nearly 30 feet high." What a splendid tree it must be! It is an elegant evergreen tree in the south, and as beautiful as a shrub in the north where it also is hardy, but more slow growing than in Georgia. There is a fine specimen of it at Dosoris.—ED.]

BEST TREES FOR STREET PLANTING.

No kind of tree can be recommended as the best for planting in the streets or suburbs of any town or city regardless of the local circumstances in any given case. If the region under consideration be the northern states north of the Potomac and Ohio, and east of the Mississippi, the conditions of soil and climate, or of culture and environment differ so widely that the best tree for one section may be the worst for another. Yet, under good care and culture two or more species of maple, elm, linden, oak and poplar have been used for street planting with fair success in all of this great range of territory.

In the eastern states the sugar maple, the Norway maple, the ailantus, and the sycamore or plane, are among our best street trees but none of these are satisfactory in the western states. On the other hand the ashleaved maple, the catalpa, the white ash and the walnut succeed best in the west. The white maple, the American and the European elms, and the cottonwood are grown successfully in both sections.

These trees with the exception of the walnut have numerous fibrous roots, and are used in preference to those of the nut bearing sorts because they are so easily transplanted, even when of considerable size. The horse chesnuts and the lindens are often selected for this reason. The red, the black and the scarlet oaks also thrive well in our streets, if they can be protected until well established, but to do well they must be set out so young and special provision must be given to guard them from injury. A tree box is of no use if a horse can reach the leading branches above it. Wire netting cannot be readily applied until the stem is four inches in diameter, and the lowest branch eight feet high.

Few realize the constant liability to danger and destruction to which young trees in streets are exposed by the gnawing of horses, or the pranks of mischievous boys. Some idea of it may be gained by inspecting the trees in any town on any given street, and noting how few show no sign of stunted growth, scarred trunk, or mutilated branches. The trees are also constantly exposed to damage by the cutting of trenches across their roots for sewers, gas pipes, water pipes, or by changes of sidewalk line or grade. Under ordinary city conditions the trees suffer constantly from lack of moisture because the hard ground sheds most of the rainfall, from poison by gas escaping at the roots, or from dust and soot choking the pores of the leaves. This unhealthy condition invites grubs and borers, caterpillars, scale and fungus.

But probably the lack of vigorous growth so common in street trees is most commonly due to the barrenness of the soil; in grading the street the soil and subsoil are often removed to such an extent that the hole in which the tree was planted had been dug in hardpan, or in a sub-stratum equally sterile In such cases the quantity of poor subsoil that ought to be dug out and of good soil substituted is seldom fully appreciated. In such conditions a hole ten to fifteen feet wide and three feet deep should be excavated, the bottom and sides loosened with the pick as deep as possible and the hole filled with rich loam.

Another common error is to plant too near the curb line and the trees too near each other. The roots should be given a chance to spread on all sides. Close planting may look best for a few years, but the spread of the branches at maturity ought to be allowed for. Forty feet apart is the least that should be given, and even fifty feet is none too much for trees of the largest class. A distance of five to ten feet back from the curb line is desirable both for protection from horses and for root space. Sometimes we see street trees planted twenty or twenty-five feet apart, with two kinds of trees alternating. These were probably planted for immediate effect with the intention of cutting out the poorer of the two kinds when

the branches begin to touch. But the thinning out is seldom done in time, because the resolution to cut down before damage is visible is not so strong as the temptation to let alone, especially if the trees be growing finely.

WILLIAM MCMILLAN, Supt. Parks.
Buffalo, August 18, 1896.

HARDY VINES FOR A SMALL GARDEN.

Vines give a home a remarkably cosy and comfortable appearance, then have lots of vines. Cover the stone or brick walls of your dwelling or outbuildings with them, train them up the pillars of your verandas, and run them as a screen between the posts, to shade you from hot sunshine and prying eyes. Spread them over fences, drape them over banks and walls and rough unkempt places, and even set up posts or trellises here and there for their accommodation, but never let this conflict with the keeping or style of your home or grounds, but have all in happy harmony.

JAPAN IVY (*Ampelopsis Veitchii*) surpasses all other vines for covering stone or brick work, but it is of little use attempting to cover painted wood with it. [When painting the wood scatter some sand on the wet paint, and then the ivy will stick to the boards all right.—ED.]

THE VIRGINIA CREEPER is excellent for covering rock piles, root stumps, etc., but I would not recommend it for use on the house or piazza.

HALL'S JAPAN HONEYSUCKLE, now so common everywhere, is indispensable in our gardens; it makes an elegant vine and its fragrant yellow and white blossoms in June and July are very delightful.

CLEMATIS FLAMMULA is a very vigorous vine with highly fragrant white fleecy blossoms in June and July. Don't omit it. As soon as it is out of bloom in comes that now most popular of all clematises, namely.

CLEMATIS PANICULATA, whose snowy sheets of blossoms cheer us in August and September.

CLEMATIS JACKMANNI, purple, and *C. Henryi*, creamy white, should be given cheice places, even if we set up pillars or trellises for them.

THE CHINESE WISTARIA, all things considered, is still the best and most reliable of all; its glory in May is familiar to all. There is a white-flowered form of it apparently as free as the common blue, but not so common.

AKEBIA for covering fences and lattice work is an excellent vine, and it retains its neat green leaves in their freshness till near Christmas. It has myriads of small purple flowers in early spring.

PIPE VINE (*Aristolochia Sipho*) makes a fine covering for a fence or for lattice work; and its thick over-lapping leaves give a fine shade if needed.

JOHN DUNBAR.
Highland Park, Rochester, N. Y.

GOOD SHRUBS FOR SMALL GARDENS.

Shrubs suitable for amateurs to grow in small gardens should be remarkable for their neat and becoming forms, beautiful or fragrant flowers, or conspicuous fruit, and they should be easy to transplant and grow. The following kinds are good serviceable sorts and cover the season with bloom from April till September. By the end of June nine-tenths of our garden shrubs have passed out of flower, and only a few remain to display their blossoms in July, August and September.

DAPHNE MEZEREEMIS about the earliest shrub to bloom we have, it comes in about the end of March; its flowers are rose pink, and delightfully fragrant. It loves good. rich moist soil.

FORTUNE'S FORSYTHIA (Golden Bell), yellow, about the end of April; it is the easiest to grow of any shrub I know of.

THUNBERG'S SPIRÆA, of airy graceful habit, has myriads of white flowers about the end of April and first of May. In fall its spray-like branches are a mass of brightly tinted foliage.

VAN HOUTTE'S SPIRÆA is the showiest of its race; its arching branches are wreathed with umbels of white blossoms about the end of May.

SPIRÆA CALLOSA ALBA, low growing, compact, with many cymes of white flowers about the middle of June.

SPIRÆA BUMALDA, rosy pink, very free, beautiful and lasting in bloom from June till September. Of dwarf habit like the last.

THE PEARL BUSH (*Exochorda grandiflora*) has showy white flowers from the middle to end of May.

MAULE'S JAPAN QUINCE, of fine dense habit, and having orange colored flowers about the first of May.

ROSA RUGOSA, pink and white, blooms heavily end of May and first of June, and after that more or less all summer long. Its clean bold foliage and handsome fruit are also a desideratum. Grow it as a mass in the shrubbery or an isolated group by the side of the lawn, treating it as a shrub and not as a rose.

THUNBERG'S BARBERRY, low-growing, compact, easy to grow, and full of brilliant fruit all the fall and winter. But its praises have been so often touched upon in GARDENING that all must know it.

DEUTZIA GRACILIS, a small, broad, little shrub of the easie t growth, and bearing a profusion of white flowers from May into June.

DEUTZIA CRENATA PRIDE OF ROCHESTER, a by far more vigorous plant than the last with double white flowers about the middle of June.

LARGE-FLOWERED MOCK ORANGE (*Philadelphus grandiflorus*) is very gay with pure white flowers about the first of June.

LILACS, MARIE LEGRAYE, white, and Souvenir de Ludwig Spath, dark purple, are the two finest of all lilacs, and everybody should have them.

KERRIA JAPONICA, single or double, is a small to medium sized shrub with many pretty yellow flowers in May, and more or less all summer.

THE PEPPER BUSH (*Clethra alnifolia*) has spikes of white f agrant flowers in July and August, and is easily grown.

ALTHÆA OR ROSE OF SHARON.—The double red and double white are the most esteemed in a general way, but the purples are of such disagreeable shades that I cannot recommend them. The best of all the althæas, however, is the single pure white flowered form known as TOTUS-ALBA; it is really beautiful.

HYDRANGEA PANICULATA GRANDIFLORA is an indispensable shrub; it is in full bloom now and lasts in good form till next month. And if you get the late-blooming form of it as well as the common one, its floral period will run into October. Cut it well down every year, and plant it in deep, rich ground. It is one of the hardiest shrubs grown in gardens, thriving even in our rigorous northwestern states.

LESPEDEZA SIEBOLDII (commonly known as *Desmodium penduliflorum*) blooms in September. Cut it down to the ground every year as you would a hardy perennial, and grow it in good soil, and it will form large 4 to 6 feet high masses, arching with drooping panicles of small rose-purple pea flowers.

JOHN DUNBAR.
Highland Park, Rochester, N. Y., Aug. 10, '96.

TWELVE BEST BROAD-LEAVED EVERGREEN SHRUBS FOR THE MIDDLE SECTIONS OF THE SOUTHERN STATES.

ASALEA INDICA.—"What a glorious sight," exclaim the hundreds of Northern tourists who annually visit the far-famed Magnolia Gardens, 18 miles from Charleston, S. C. There the late Rev. J. G. Drayton set out the most wonderful collection of azaleas that had ever been brought to this country. The earliest plantings, now some 50 years old, consisted of nearly all single varieties, but they have grown with a vigor that shows that their constitution had not become weakened, as is unfortunately so often seen in the newer European sorts. At that famous place one can see plants that measure 25 feet in diameter and from 10 to 15 feet high and have been allowed to grow at will, free from the shears or pruning knife. Here we find our old friends Phœnicea, Crœmina, Indica alba, Glory of Sunning Hill, Pride of Dorking, Iveryana and many others eclipsing by their vigor, size and profusion of bloom most of the latter day sorts, few of which show the same robust growth. The azaleas of Magnolia Gardens have demonstrated that for open ground cultivation in the southern sections of Georgia, South Carolina and Alabama the older sorts grown in bush form and upon their own roots give much better satisfaction than the grafted imported plants, which are most valuable for forcing under glass. The soil best suited to azaleas is one rich in leaf mould, and the situation one that is partially shaded, although we occasionally find very large and healthy plants of the Phœnicea class in full sun and dry soil.

CAMELLIA.—Again we take the Magnolia Gardens as one of the best instances where this plant has been most extensively cultivated. Like the azaleas most of the plants were set out at the same time, although there are specimens of the old single red variety that are probably 60 years old, and at the old Lucas place in the city of Charleston yet stands the oldest known tree of the single red, which was planted in 1808. A few years ago in company with Prof. Sargent we measured that old tree and found its height to be nearly 30 feet and the diameter of its trunk 18 inches at one foot above the soil.

Camellias abound in all old gardens in the Southern cities, where some have reached to a great size and have stood every extreme of heat and cold. Beginning with the old Alba Plena or double white, whose first flowers often open in November, we have a regular succession of floral harvest until April, and have the choice of some two hundred varieties. The semi-double, while giving less perfect flowers than the Imbricated sorts, make up for this in their wonderful profusion, and a plant of say *Gunellii* or Lefebreanum 10 to 12 feet high and covered with hundreds of blooms is a sight not soon forgotten. Camellias are easily grown and not difficult as to soil, but like azaleas they take kindly to one rich in humus and deep and friable.

BERBERIS JAPONICA.—With its broad glossy foliage and bright golden flowers early in March gives us a very desirable early spring blooming shrub. *Aucuba*, or

ABIES LASIOCARPA AT DOSORIS.

those the old variety *Japonica*, or Gold Dust Tree, is perhaps the best; it attains to a large size in the upper sections of the South and is at its best when given partial shade and very rich soil. *A. macrodontha* and *Himalayaica* are the best of the green-leaved sorts and are beautiful in fall when laden with dark red berries.

ELÆAGNUS OR JAPAN OLEASTERS are exceedingly valuable and beautiful. The variegated varieties like *pungens maculata* and *reflexa aurea* are unquestionably among the best plants for raising; they retain the golden color of their foliage throughout the warmest weather and are as bright in midwinter as in early spring. Contrasting with these are the plain-leaved sorts like Simonii and Macrophylla, whose silvery under surface of the foliage give them a metallic hue.

ESCALLONIA MONTEVIDENSIS is one of our best summer blooming shrubs; its flowers are pure white in large umbels. It is not hardy in the upper sections.

GARDENIA FLORIDA, or cape jasmine, is found in almost every garden, whether in city or in the backwoods. It grows to a height of 15 feet in very rich soil and produces innumerable large white flowers during May, June and July. Their fragrance is so intense as to be objectionable at times, but even if the plant were flowerless its beautiful, glossy green foliage would make it a desirable one in any garden.

CERASUS LAUROCERASUS or English Laurel.—In the colonial times when most exotic plants introduced in the South came from English growers the name English was given rather indiscriminately to many plants and trees which are natives of other sections, thus we still hear of English peas, English grapes, English walnuts, English mulberries and English laurels, and those names have stuck. English laurels are not sufficiently appreciated in landscape work; they are hardy, take to almost any soil, grow rapidly, have bright glossy foliage and stand all kinds of weather. By grouping the various forms, such as *Colchica*, *Bertini*, *rotundifolia*, *camelliaefolia*, etc., a pleasing contrast is obtained.

HELIANTHEMUM ALGARVENSE or *Cistus* (Rock rose.)—A medium growing shrub, thriving in dry soil, and during May and June is literally covered with large white flowers with a dark spot on each petal. It is a beautiful plant, and while its flowers close at midday they are produced daily in great profusion. It is not hardy in the upper sections.

MAGNOLIA FUSCATA OR BANANA SHRUB is an old favorite of old Southern gardens, but little known elsewhere. The brownish yellow flowers which appear in early spring emit a delightful banana fragrance. It is hardy south of Atlanta and grows best in very rich soil, and like all magnolias it is partial to a liberal supply of plant food.

OLEA FRAGRANS, OR CHINESE TEA OLIVE, is another well known and exceedingly valuable plant, and hardy as far north as Atlanta. Its flowers are small, pure white and produced in clusters at irregular periods from September to March. They emit a most delicate fragrance, a single plant wafting its sweetness to a great distance.

VIBURNUM TINUS OR LAURUSTINUS is a most profuse fall and winter blooming shrub; flowers are white or flesh color in umbels. The plant thrives in any good garden soil. P. J. BERCKMANS.

Atlanta, Ga., Aug. 21, '96

THE CALIFORNIA WHITE FIR AT DOSORIS.

(*Abies lasiocarpa.*)

Fir tree is the common name of trees of the genus *Abies*, spruce tree of the genus *Picea*, and pine tree of the genus *Pinus*; all a e evergreen trees, and some of them besides being of great economic value are among the most valuable ornamental trees of our gardens. Among spruces all are familiar with the Norway spruce (*Picea excelsa*) and the white and black spruces of our northern mountains; and as a refined garden tree with the Colorado blue spruce. In our gardens we also have Engleman's spruce, Oriental spruce, tiger tail spruce, Alcock's Japanese, and Smith's Himalayan spruces. Spruces are shapely, straight stemmed trees, easily grown, and easily transplanted (the Oriental may be, excepted). The cones of spruces hang down when growing, those of firs stand up; most anybody can tell them apart from this peculiarity alone.

As a rule the fir trees coming from lower altitudes than the spruces are not quite so hardy as they are, still many of them are hardy enough as far north as Boston, and the balsam fir to the arctic regions. Nordman's fir is the most esteemed in gardens, but of many others, for instance, *firma*, *brachyphylla* and *Veitchii*, from Japan, also the Cephalonian fir, Cicilian fir, Spanish silver fir (*Pinsapo*) Algerian fir (*Humedica*) Cephalonian, Saghalien, Siberian, nobilis, and others, there are fine specimens at Dosoris, and several of them have already been illustrated in GARDENING.

For general planting in the eastern and northern states the Colorado mountain white silver fir (*Abies concolor*) is the best and hardiest. The same species also occurs in California, but like the Californian forms of the blue spruce (*Picea pungens*) and Douglas fir, the Pacific forms of the white fir are less hardy than are those of the Colorado hills

Our illustration, engraved from a photograph taken at Dosoris a year ago, shows you a pretty little tree of *Abies lasiocarpa*, a Californian form of *A. concolor*. It is a handsomer tree than the typical Colorado plant, but not reliably hardy in the north, except in mild and sheltered places. Our illustration must also appeal to you in another sense: behold the shape of that plant, branched to the bottom and full to the top, and this is how all evergreen trees should be grown.

While we used to transplant evergreen trees in early fall with perfect success at Dosoris, we prefer to advise our readers to let the evergreens alone till spring; they are apt to recover quicker then than now.

PRUNING SHRUBS.—M. F. M., Detroit, asks: "Will you tell me when and how the following shrubs should be trimmed: *Hydrangea paniculata grandiflora*, *Cornus Sibirica*, and *Amorpha fruticosa*?"

Ans. The time for pruning any of them is most any time in mildish weather between November and the first of April, but March would be a safe time in your neighborhood. In fact we attend to pruning of these and such like plants any time in winter providing the weather isn't severe, for wounds made in hard frosty weather don't heal up as nicely as those made in mild weather. As regards the hydrangea, cut it back to the second joint of the current year's growth. The cornus needs very little pruning, maybe some thinning and shortening of the shoots to make a symmetrical specimen. The amorpha needs very little of the knife; cut off the old flower spikes, shorten the shoots a little that are running out too far and cut out dead wood.

SPIRÆA ANTHONY WATERER.—W. O. C., asks: "Will spiræa Anthony Waterer prove hardy in this climate, where it sometimes gets as cold as fifteen degrees below zero? Will protection such as is given to half hardy roses prove beneficial? Am well pleased with it, its habit of growth and foliage is beautiful, and it is continually in bloom. It is certainly an acquisition if it will prove hardy in our climate." *Ans.* If *Spiræa Bumalda* is hardy in your neighborhood so is Anthony Waterer. The degree of cold you mention should not hurt it, at the same time there are other conditions besides the intensity of cold that help to destroy plants, for instance long continued cold, changeableness of weather in winter, open exposure to frosty winds, and late severe cold snaps. Shelter from cold winds, and a mulching or protection of branches, or such as you give the roses, will certainly aid in preserving it if your climate is too severe for it.

GET RID OF LOCUST.—A Michigan reader wants to known how to get rid of the common locust; its sprouts come up all over the place. *Ans.* By carefully rooting up and removing every sprout in sight and keeping this up. Where old trees have been cut down the roots left in the ground are sure to throw up sprouts, and they keep on doing this for two or three years.

The Flower Garden.

SUMMER OUT DOOR PLANTS.

CANNAS of the Crozy type, may be placed in the front rank of summer out door plants, for their great beauty and adaptability for various purposes.

HIBISCUS ROSA SINENSIS.—Its great variety of single and double sorts, make gorgeous masses when bedded out; the plants are equally beautiful grown as specimen plants in pots or tubs, flowering profusely during our warm weather.

LAGERSTRŒMIA or crape myrtle.—It may appear a little out of place to put what grows here to a large shrub or small trees among these plants, but when I look about my nursery during our hottest summer weather and see the glorious masses of richest crimson in *L. Regina* and the equally beautiful bushes of the white, pink, purple and other varieties, I feel I cannot too strongly recommend them. Farther north where not hardy they may be grown in pots, tubs, etc., and wintered in a cellar or any place from severe frost. [At Dosoris we planted them out in April and lifted them about the end of October or first of November, and heeled them into a cold pit, and they blossomed beautifully for us every year. —ED.]

TABERNÆMONTANAS OR GLORY OF THE DAY.—Flowers of the purest white, double and deliciously fragrant, and borne in great profusion on bedded out plants.

ABELIA RUPESTRIS.—For Washington and south this is a pretty, compact, hardy shrub, blooming profusely during summer and fall. Where not hardy it will well repay for pot culture—protection during winter and planting out in summer. [At Dosoris it was not hardy, but we treated it just the same as we did the crape myrtle and it behaved splendidly and kept in bloom all summer long.—DD.]

CROTONS are not flowering plants, but among the very finest foliage plants for bedding out in summer, the large leaved variety are best for this purpose.

SOLANUMS are vines or climbing plants, *Wendlandii, Seaforthianum* and *jasminoides grandiflorum* succeeds beautifully in the open air during summer, place around them some branches three or four feet high over which they can scramble at pleasure. They grow profusely.

TECOMAS, *Smithii, Capensis, Makenii, Stans*, etc., bed out finely, flower profusely, and are handsome and distinct plants.

IPOMŒA BRIGGSII.—Cultivators who are acquainted with that fine old plant *Ipomœa Horsfallæ* have in this an equally beautiful plant, flowers similar in color, a free grower, succeeds admirably in the open, running rapidly on branches or stakes and flowering profusely.

ERYTHRINAS.—*Crista galli, compacta*, Mme. Belangiers, and others are beautiful plants of easiest culture. Plant out in May when weather is fine. They grow off finely and commence blooming early and profusely during summer, giving rich, deep coral red flowers. Lift the plants before severe frost and place them in a dry, warm cellar or under the greenhouse stage for winter.

PLUMBAGO CAPENSIS has lovely azure blue flowers freely produced during warm weather; *Albos* is a white variety of the last equally beautiful; old plants can be stored during winter in the same way as erythrinas. *P. Larpentæ* is a dwarf, hardy species with flowers of a bluish purple color.

TRITOMAS (*Kniphofia*), Flame or Torch flower.—We have now many beautiful species and varieties of these showy plants and they bloom finely in the open air, they are distinct and effective.

JOHN SAUL.

Washington, D. C., August 17, '96.

THE CRAPE MYRTLE AS A BEDDING PLANT.

Last year some one was offering crape myrtles cheap so I sent and got a hundred of them. They were long bare sticks, but I cut them back and planted them out in a bed between small plants of *Hydrangea paniculata grandiflora* and the way in which they grew and bloomed astonished me. They came into bloom about the time the hydrangeas were at their best or on the decline and lasted in beauty till frost, and the flowers were so odd, and pretty and lace-like, that we were charmed with them. As soon as frost came we headed the plants back a little and lifted them and stored them close together, their roots in soil in a bench, in a cold greenhouse, there to remain over winter. Last spring we planted them out again and they are bigger and better than ever this year. It is a very common hardy garden shrub in the south, but not hardy in the north, however, it has come into my garden to stay. J. T. TEMPLE.

Davenport, Iowa.

The merits of the crape myrtle as a garden plant in the north have never been fully appreciated because the people do not generally know how good a thing it is with us. We had it at Dosoris—red, white and purple flowered forms, and it always grew and flowered beautifully. We lifted the plants in November, as we did evergreen euonymus, pomegranate, abelia, and other barely hardy shrubs, and heeled them in in a cold pit over winter, planting them out again next April. We have also left them out of doors over winter, mulching them deeply, but we got better growth and better success by lifting and wintering them in the pit than leaving them out in the ground, that of recent years we restricted ourselves to that practice. From Washington southward it is as common as a hardy shrub in gardens as are lilac bushes in New England.

HARDY PERENNIALS FOR THE FLOWER GARDEN.

Having a space about seventy by twenty feet laid out in garden, small geometrical beds bordered with dwarf box, in a sunny location, I am desirous of planting it with hardy perennials that will make it uniform in appearance and have as much bloom as possible during the entire season. Will you kindly suggest the best treatment for it?

Northern Ohio. A SUBSCRIBER.

Small geometrical flower beds are not well adapted for hardy perennials, because the plants won't have room enough in them to attain their full development and make a good and permanent show. Perennials last only a short time in bloom, and in order to have flowers all summer long we must use a large assortment of kinds and several plants of a kind. In big beds and spacious borders we can so arrange our planting that when one plant is out of bloom another springs up alongside of it to take its place. In small beds this is hard to do. For instance, if it had a clump of Oriental poppy, pæonias, delphinium, bleeding heart, or Davidiana clematis in a small bed there would be very little room left for anything else. When the pæonia or bleeding heart would be cut over we would have to fill up with annuals; when the delphinium would be cut down there would be bareness in that bed till the second growth would spring up, and so on. We advise you to get up a nice selection of neat hardy perennials that will cover the whole season with bloom, and use these as your situation may suggest. A list like this would include white rock cress, golden alyssum, spring adonis, lungwort, large white trillium, spring German and Japan iris; columbines, moss pink, summer and panicled phloxes; yellow (*flava*) and golden (*rutilans*) day lilies, single and double pyrethrums, evergreen candytuft, Carpathian, peach-leaved and other campanulas, hardy pinks, white day lily, mist flower, Japan sedum, Siebold's sedum, Japan anemone, Maximilian's sunflower and a host of bulbous plants like narcissus and lilies.

EULALIA JAPONICA.

There is no class of hardy ornamental grasses more suitable for the adornment of public or private grounds than the *Eulalia*. With a simple winter protection

A BED OF EULALIAS

they have proved hardy and reliable. We are indebted to Japan for this graceful genus, where it is found wild on what is known there as the "Hara." This name is applied to the numerous grassy mountain slopes of that country which is the habitat of many of the choice plants found in our gardens to-day. Azaleas, cydonias, deutzias and the handsome *Rosa multiflora* are its companions. The *Eulalia* is also found in uncultivated swampy low lands, thus indicating a constitution capable of growing on either swampy or well drained soils. The pheasant and the snipe love to hide in the thicket made by its dead leaves in autumn and winter. Botanists want to call it *Miscanthus*, and the natives know it as "Susuki," but to me there seems a poetical unison in its graceful manner of growth and the rhythm of the name *Eulalia*. The species *E. Japonica* has three forms under cultivation, namely, the type which the leaves are green, the variety *E. J. striata* in which there is a creamy band running longitudinally through the center of the leave, and *E. J. zebrina*, whose leaves are crossed by yellow bars, a peculiar freak of nature. The latter is a stronger grower than the others and the handsomest of the trio. If well grown it will attain a height of nine or more feet, and the former four to seven. The leaves are long, narrow, and graceful, and the flower plumes maturing early in October are carried well above the curving tips of the leaves. These plumes are creamy white in color, and where the rays of light can be seen shining through them, they have a peculiar lustre that materially adds to their beauty. If cut before they open they are admirable subjects for house decoration, as they retain their beauty a year or more and do not drop their downy seeds. The most effective way to use them is to cut them with long stems and place them in large wide mouthed vases to be set in some roomy corner where their grace and beauty will add dignity to the surroundings. In the Botanical Gardens at Washington, D. C., there is a large bed of these grasses, and in the summer it is considered one of the features of the place. Where a large bed can be used, say eight or more feet in diameter, it is well to use in the center some strong plants of *Arundo Donax*, the giant reed of Southern Europe, which will grow up above the eulalias and relieve any tendancy to flatness at the top. The two variegated forms are the ones generally used. In winter I cut down the tops to within six inches of the ground, manure heavily between the plants with short rich manure that I intend to remain all next summer, and then cover the cut tops with loose strawy manure. It is well not to cut the grasses until spring. The *Arundo Donax* receives the same treatment, but in addition I place an empty box over the crowns in order to exclude moisture. I sink my eulalia beds some four inches below the turf, as they are thus more easily watered, and once a week during the spring and summer months they receive a copious dose of undiluted soap suds. They seem to like it and I sometimes imagine they know when wash day comes, and are prepared for it, they take it up so quickly. The group illustrated was over nine feet high.

EULALIA GRACILLIMA UNIVITTATA.

Very graceful in form but not as tall as the other members of the family. It is the latest introduction of the genus and a very valuable one. Its leaves are narrow and wiry, enabling it to withstand strong winds, a feature lacking in the others. They are green in color with a faint light colored stripe through the center. With me they grow nearly six feet high. This plant should stand alone or in individual groups of three or more as its symmetrical and graceful outlines is its characteristic beauty. W. C. EGAN.

Egandale, Ill.

MIGNONETTE, ASTERS AND GERANIUMS A FAILURE.—A reader writes: "My mignonette was a failure this year, my asters have been disappointing, and geraniums poor, as you say yours were, but a neighbor who had his set out in a bed rising pretty sharply from the circumference to the centre has a splendid show. Mine were set flat." *Ans.*—It is like this: In cold winter weather you can wear thick clothes and make up a good fire and keep warm, but in very hot weather in summer, dress or lodge as you may you cannot keep cool. In like manner in dry weather you can use water freely and keep your plants in good health and bloom, but in protracted wet weather flat clay ground becomes so sodden that plants must sicken and many die in it. In a wet summer like this your flat beds are wrong. They keep mucky and soaking and your plants rot; but your neighbor's mounded beds are right, the mounding drains them and the plants flourish in them. Be it wet or dry next year all of our beds will be well raised above the surface of the ground.

WINTERING HYDRANGEAS AND HIBISCUS.—E. P. A., Hammond, Ind., asks: "How to winter hibiscus and hydrangeas? We have fine, healthy plants, but neither have bloomed." *Ans.* We presume you mean the *Hibiscus rosa-sinensis*. The hibiscus isn't anything near being hardy so it should be completely protected from frost, it will live over winter very well in a frost proof but otherwise cool, dry cellar, and the soil its roots are in should be kept slightly moist. Hydrangea roots if mulched will live out in the garden, but such plants are likely to flower poorly the following summer. Before sharp frost comes bring the plants into a cellar as for the hibiscus or into a cool pit, and keep the roots moderately moist. Keep them free from damp overhead.

IRESINE AND "TREE MOSS."—C. W. R., Mich., sends sprays of "some alternanthera, I suppose, also of a so-called 'tree moss,' the way the latter spreads is wonderful, I want to know how to get rid of it effectually." *Ans.* The red-leaved plants are not alternantheras at all, but iresines, or as they are generally called achyranthes; the point:d leaved one is *Iresine acuminata*. The "tree moss" is the cypress spurge (*Euphorbia Cyparissias*) an introduced weed from Europe. Nothing but persistent rooting out will get rid of it.

THE CHICKENS PICKED THE CUPID SWEET PEAS.—The Cupid sweet peas do not fulfill the expectations I had of them, they have only a few blooms, and then they are so handy low that the chickens pick them off and nothing is left.

Hartford, Conn. W. S.

Roses.

THE ROSE HOUSE IN SEPTEMBER.

Every lover of the Queen of Flowers is very anxious to know how to secure the best blooms for the coming winter, and as the treatment now will greatly influence the quantity and quality of flowers for the future let me give you a few suggestions bearing on this point.

Presuming that the roses were planted out on the benches in June or July and have now gotten fairly well started into growth, they should be kept growing on steadily, but as the days grow shorter the proportion of water given them should be somewhat reduced; the object being to produce a good firm wood rather than a soft pithy growth. Continue to give all the ventilation possible during the day, on bright mornings especially; the ventilators should be opened a few inches as soon as the sun strikes the glass or the temperature inside has risen 3° or 4°; do not wait till it has risen 8° or 10°, or more, and then put on a lot of air at once, as this is the surest way possible to produce mildew; on the contrary a gradual rise of temperature and an increase of ventilation as fast as required till all the air possible is circulating freely through the house is the best preventive of mildew, and with reasonable, careful watering will produce the firm solid wood necessary for the coming winter's work. In reducing the air in the afternoon the same rule should be followed, i. e., reduce it gradually as the temperature inside drops.

Where the plants have become well established, a very thin mulching of well decomposed manure will help them, if spread evenly over the surface of the soil. This has the advantage of helping the plants to build up a strong, vigorous constitution and preventing them drying out at the roots quite so rapidly, thereby lessening the use of so much water, thus producing a dryer and healthier atmosphere at night, which is very important, particularly as the nights get longer and somewhat colder. Immediately they get cool enough to produce a dew on the foliage of the plants, which frequently occurs even in early September, it is much safer to have a very little fire heat, even if it is necessary to have some ventilation on all night in conjunction with the artificial heat, as these heavy dews if repeated for two or three nights in succession are almost sure to do irreparable damage.

Often in spring and fall your roses may drop their young leaves, and then the stems turn brown and their crop of flowers be ruined. The sole cause of this is allowing these heavy dews to settle on them for two or three nights in succession. Keep a careful watch for green fly and other insects, and give them sharp notice to quit as soon as they are seen or they will soon take possession. All dead leaves, weeds, etc., should be removed as soon as seen. This is one of the best preventives of insect and fungus pests at all times.

JOHN N. MAY.

Summit, N. J.

ASHES AND SOOT ON ROSES.

Some time ago I saw in GARDENING a recommendation to try wood ashes for mildew on roses. I mulched mine as described, but did more. I pulverized some soot from a soft coal fire very fine, and sprinkled it over the foliage when the dew was on the leaves. It has completely cleaned my roses. No doubt the ashes are good, but soot seems better. They were a pretty bad case too, caused by the muggy hot weather of July and lack of proper attention, for I was away myself. This may be no new thing, but it may help some who are troubled as I was.

A. B. O.

Ingersoll, Ont., August 20, 1896.

Chrysanthemums.

CHRYSANTHEMUMS.

Specimen plants should not be pinched after the first week in September but there are many weak growths and lateral shoots to remove before the regular disbudding season commences. Any plants that have not already received the required amount of stakes should be seen to at once and the shoots tied up so that they don't split by pulling too much one way; this can also be prevented by tying with a string to the opposite stake. Use as few stakes as possible and leave your stakes long now, it will be time enough to cut them short when the flowers show color. This is also a good time to topdress the plants, and the giving of manure water may be commenced when they are through feeding on the topdressing.

The best manure for amateurs is sheep, cow or chicken, manure, soot and a sprinkling of bone dust, but be careful about the chicken, manure, a little of it goes a long way. Mix either with a little soil or mix all together with soil and stir the surface of the soil in pots and apply the mixture as a light dressing.

In giving manure water change it every week, say first use cow manure, then sheep, etc., and be sure you understand the strength of the different materials used, err on the safe side, that is on the weak stimulants. If you should like to try other fertilizers such as nitrate of soda and sulphate of ammonia a 3-inch potful to 50 gallons of water is a safe measure. If your pots are troubled with worms a little lime water will remove them. For plants grown to single stems (which should now be in 6-inch pots) do not begin to feed them before the pots are well filled with roots. To keep down aphis keep plenty of tobacco stems around or syringe with tobacco water, if your plants are indoors fumigate them and keep turning them to make them perfect specimens, otherwise they will grow one-sided. Don't neglect them once in watering. Syringe them twice a day in bright weather, and keep plenty of moisture around them at all time when they are growing.

Plants on benches should now require topdressing, a mixture the same as used for pot plants will answer first-rate for them. Every shoot will require support of some kind. A good plan is to run a wire over each row, then place a stake to each plant and tie the stake to the wire and tie the plant. You can run two or more straight shoots to a plant but when tying, do not bunch them together; tie each shoot separately and so that when you cut your first flower you don't interfere with the others that are coming on the same plant. Galvanized wire stakes are the best; they make a fine, clean, firm job. But as a good many of us who grow chrysanthemums for a living can't afford this we run a wire top and bottom of each row, making them as secure as possible and then run cheap string to each shoot, tying to same. As soon as the tying is finished you must keep going removing all lateral growths, some varieties are worse than others and have to be watched more closely; the worst of those are Mrs. Whilldin, G. W. Childs, Marion Henderson and Viviand-Morel.

About this time some kinds will be showing their crown buds, but I do not recommend this bud to beginners, but should advise where two or more shoots are grown to a plant try here and there a crown bud, and take note of same for future reference. Most varieties require plenty of water, but when they are wet enough at the roots to last a day or so (according to the weather) a light syringing will never do any harm and syringe at least once a day in warm bright weather.

I may mention two varieties that do best on the dry side at the roots, but they will take lots of syringing, they are Golden Wedding and J. H. Troy. You will have no blight if you handled them on the dry side at the roots. In ventilating give all the air you can until the first of October, never reduce the ventilators more than enough to keep the rain out; if you keep a free circulation of air at all times you will find less mildew will result than from shutting up tight.

Jersey City. A. D. ROSE.

The Greenhouse.

SUMMER INDOOR PLANTS.

IXORAS.—For summer blooming we have no more beautiful plants for indoors than ixoras; when they are well grown into good specimens they are truly gorgeous.

ALLAMANDAS.—The species and varieties of allamanda can be grown into fine plants indoors, where they bloom profusely. Nearly all do equally well bedded out during summer in a warm sunny position, where they will grow and bloom freely.

BOUGAINVILLEA GLABRA SANDERIANA is a very distinct plant of free blooming nature and it makes a handsome indoor plant.

DIPLADENIAS.—Lovely indoor plants, but it requires care and knowledge of plant growth to do them well, their great beauty well repays all labor and attention bestowed on them.

GLOXINIAS—Are exceedingly beautiful, the flowers of late have been much improved, both in size and color, and as they are easily grown they are among the most useful indoor summer blooming plants we have.

ANTHURIUMS —*Andreanum, carneum, Ferrierense*, with many hybrid sorts are distinct and striking both in flower and foliage, while those grown more particularly for their foliage as *crystallinum, Veitchii, Warocqueanum*, etc., make grand and noble specimens.

CALADIUMS.—Where delicate and beautifully marked foliage is desired we have no plants to excel the fine new Brazilian caladiums. They should be grown during summer in a warm moist house.

ALOCASIAS.—In these we have a class of plants of a truly tropical character, with large, massive and striking foliage.

PANDANUS or Screw Pine—*Baptistii, Javanica, variegata, Veitchii*, etc., are all beautiful decorative plants for indoors during summer or winter.

DRACÆNAS.—*Goldieana* I consider one of the best, it is most distinct; *Lindeni* and *Massangeana* are also fine, as well as the varieties with colored foliage, and they all are fine decorative plants, summer or winter.

CROTONS.—Good specimens of these plants, finely colored, have a grand effect. They love heat, sunshine and moisture.

MARANTAS.—In this family we have many with beautifully marked foliage; like crotons they love heat and moisture, but only moderate sunshine.

Washington, D. C. JOHN SAUL.

THE CONSERVATORY IN SUMMER.

Many of our readers have visited the magnificent gardens of Mr. H. H. Hunnewell, at Wellesley, a few miles from Boston, and been charmed with the rich floral display maintained a l summer in the conservatory attached to the mansion house. The conservatory is a roomy glass structure in two compartments, for the finer and more tender plants, and adjoining it is an annex covered by an awning and containing a fairyland of bloom. In the following, Mr. Ha ris, Mr. Hunnewell's veteran gardener, tells us what he uses in this decoration.

"The conservatory annexed to Mr. Hunnewell's residence we usually fill about the 20th of April, and in it besides the usual display of palms, dracænas, etc. we concentrate all the orchids we may have in bloom at a time, say some four or five hundred plants. About the 15th of May, season permitting, the annex, which you are aware is covered with an awning, the building itself 50x20 feet, we usually fill with azaleas, rhododendrons and deciduous shrubs in bloom, such as deutzias, viburnums, roses and hydrangeas; in addition to these of course we require ornamental foliage plants for effect. When June comes, these are somewhat changed to give place to specimen plants of geraniums, pelargoniums, calceolarias and various varieties of lilies, and as the season advances large specimen plants of rhyncospermums, clerodendrons, fuchsias, etc. and sundry other plants. We grow quite a lot of Canterbury bells, foxgloves, snapdragons, achimenes and gloxinias for effect. All the above give us usually a good show until after the middle of July. You will thus see it is not rare or expensive plants we require but things that will make a show. During the remainder of the season till about the 15th of September the structure s filled with fine foliage plants such as palms, dracænas, crotons, ficus, ferns and curyas, with some fine araucarias, etc.

Wellesley, Mass. F. L. HARRIS.

WATERING SUCCULENTS IN SUMMER.—E. O. N., asks: "Should *Agave, Aloe, Haworthea* and *Crassifolia* be watered or not in summer?" *Ans. Crassifolia* being a specific and not a generic name we cannot tell what plants you refer to under that name, but shall assume that you mean *Crassula*, which also is a genus of succulents. In these four genera we have in a general way, two distinct classes of plants, namely the agaves are mostly American, and the other three South African. American plants as a rule grow in summer and are comparatively inactive in winter; South African plants grow in winter and spring and are comparatively inactive in late summer and fall, but of course our cultural conditions modify their inclinations considerably. Agaves enjoy full sunshine at all times, the others like a little shade from hot sunshine, but we have them all growing in the open. When growing them either in pots or planted out we would never let them get extra dry in summer, but even in winter we wouldn't keep them dust dry at the root, but we would keep them quite dry overhead. Aloes are in best bloom in February and March, hence should get a fair amount of water then, for they start to grow freely about that time.

Aquatics.

WATER LILIES.

There isn't a more charming spot in the garden than the water lily pond, in it we have flowers every day of the summer and every night also. The size, form, and color of the blossoms of the different nymphæas themselves would give us variety enough, but they are not alone, we have nelumbiums, and a host of other little plants all a-bloom, such as water poppies, floating hearts, Indian snowflakes, and arrow leaf.

HARDY NYMPHÆAS.

Among the finest are

N. alba, pure white, free blooming.

N. alba var. *candidissima*, the largest of the white flowered sorts.

N. odorata, our fragrant wild one.

N. odorata var. *exquisita*, a darker colored flower than that of *N. odorata rosea*.

N. odorata var. *Caroliniana*, flesh color, very fine flower, and a profuse bloomer. For best results the roots should be disturbed as little as possible.

N odorata var. *sulphurea*, lemon yellow, the flowers are borne on long stems held well up out of the water, it is very f ee blooming, and a most desirable sort.

N. Marliacea Chromatella still holds its own as the best of the yello w flowered nymphæas, and the blossoms are large and borne profusely.

N. Marliacea carnea, a fine light pink flower of good size, but in small collections if you get the next one you can afford to omit this one, which is only a pale colored form of the other.

N. Marliacea var. *rosea*, the best deep pink flowered lily we have and very profuse.

N. Marliacea var. *albida* is a good white flower of large size.

N. tuberosa var. *rosea*, is a new and extra fine variety. The blossom is large and stands up out of the water some inches, and the sepals being reflexed gives the flowers a very distinct appearance. The color of the blooms is flesh pink, and the variety is very free blooming.

N. Mexicana, yellow flower, should be in every collection. It is quite hardy at Washington but its roots should be confined to a restricted space in the pond, as they send out long runners ending with a new crown, so that very soon a clump would spread over a large area.

N. Laydekeri rosea still holds its own as one of the best, most distinct and profuse of lilies, still one good clump of it is enough.

N. Helviola must not be omitted, for it is the freest bloomer we have, and a little beauty too.

The roots of hardy nymphæas should be left undisturbed as much as possible, don't divide them till they begin to crowd or bunch up, that is still the leaves begin to crowd up so much about the center of the plant, rising up out of the water; where the plant reaches this stage it should be divided, else many of the blossoms will be hidden out of sight among the leaves. Where they are grown in half barrels they should be separated every second year. But wherever practicable, all hardy lilies should be planted out in a pond or tank when we get a thriftier growth and larger blossoms than from tubs. But one must be sure not to plant out such varieties as *N. Mexicana, N. flava*, and *N. tuberosa* unrestricted or they'll run over everything, they are so far and quick spreading.

NELUMBIUMS.

Are also hardy with us in Washington. We have several kinds of them but the best of all is a seedling raised here and which was awarded a first-class certificate by the Massachusetts Horticultural Society at Boston, last fall. The color of the flower is a deep rose, and the color deepens with age instead of gets lighter, as is the case with *N. speciosum*, and it is equally as free flowering as is the latter.

TENDER NYMPHÆAS.

Of course by tender I mean those whose roots we have to bring indoors and keep in warmish quarters in winter, but all are planted or set out of doors in summer, treatment they enjoy very much. *Nymphæa O'Marana* is by far the best of the night blooming ones and exceedingly free flowering, the blooms are 9 to 12 inches across, of a beautiful rosy pink when it first opens, changing darker with age. It might be called a pink *dentata*, but the flower having more substance than that of the latter stands better when cut. [And it is the best and most reliable winter blooming nymphæa of any sort we have ever grown.—ED.]

N. dentata is still the best white of the night bloomers.

N. Devoniensis, deep pink, should be in every collection for its splendid flowers and free blooming nature.

N. Kewensis is good where an extensive collection is kept, but for the small pond or tank we may omit it. The color of its flowers, as grown here, is very pale pink with a decided purple tint in it.

Passing to the day-blooming tender varieties

N. Zanzibarensis still holds sway as the best dark blue.

N. Zanzibarensis var. *azurea*—There are some fine forms of this in cultivation now: we have several of them here of a fine azure blue, but unless we propagate them from the root w shall get back to the light colored forms of *Zanzibarensis* seedlings.

Of *N. Zanzibarensis* var. *rosea* w have a beautiful dark colored variety, quite as dark as *N. Devoniensis* and unlike any of the former dark varieties of *Zanzibarensis rosea*.

N. pulcherrima, commonly called the blue *gracilis* is a very desirable lily. We have it here ranging from the blue of *N. gigantea* to the dark blue of *N. Zanzibarensis*, and the flowers rise up out of the water 12 to 15 inches and on stiff stems. The distinctive features of this lily are its long stiff flower stems, pointed petals, and great profusion.

N. gracilis you want for its 12-inch flower stems if for nothing else. Among our hardy lilies we have better white lilies that bloom in the day time than this is, but none that is borne on long stiff stems like those of *gracilis*.

N. gigantea as a blue-flowered water lily is still unmatched, its flowers are of the most beautiful satiny blue color, with yellow silk-like stamens that give a charm to this nymphæa that is possessed by no other. [By far the loveliest of all blue-flowered pond lilies, big flowered but refined and elegant, and the plant is easy to grow and of extravagant profusion. —ED.] PETER BISSETT.

Twin Oaks, Washington, D. C., August 6, 1896.

GARDENING

WILLIAM FALCONER, Editor.

PUBLISHED THE 1ST AND 15TH OF EACH MONTH

— BY —

THE GARDENING COMPANY,

Monon Building, CHICAGO.

Subscription Price, $2.00 a Year—24 Numbers. Advertising rates on application.

Entered at Chicago postoffice as second-class matter.

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All communications relating to subscriptions, advertisements and other business matters should be addressed to The Gardening Company, Monon Building, Chicago, and all matters pertaining to the editorial department of the paper should be addressed to the Editor of GARDENING, Schenley Park, Pittsburg, Pa.

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ASK ANY QUESTIONS you please about plants, flowers, fruits, vegetables or other practical gardening matters. We will take pleasure in answering them.

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SEND US PHOTOGRAPHS OR SKETCHES of you flowers, gardens, greenhouses, fruits, vegetables, or horticultural appliances that we may have them engraved for GARDENING.

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The lawn 382

BEDDING PLANTS have increased greatly in good looks since a week because we have had dry weather; all of the plants are growing better and blooming better, and the foliage plants are coloring better than they were during the wet weather. Get in cuttings of everything you wish to save stock of, there is nothing gained by delaying this work any longer; try to have well rooted plants before winter sets in. Geraniums of all bedding kinds, coleus, iresines, alternantheras, stevia, heliotrope, ageratum, double feverfew, and the like will strike freely now. If we get up a good stock of young plants there will be no need of lifting and saving a lot of the old ones from the beds, and having a full stock of young plants on hand and under cover early is a good precaution against early frosts.

A FLORAL PLOW.—At a recent flower exhibition in Cleveland we saw a plow—full-size—made of flowers, also an umbrella and other flower-lined monstrosities. But they were woefully out of place. Instead of being spread before the eyes of the Society of American Florists, it is out in a field to scare the crows they should have been set.

AQUATIC PLANTS.—Look over your ponds and tanks and carefully note how you are off for the different kinds of plants, and label each kind distinctly and securely. See that you have some seed pods secured of *Nymphæa Zanzibarensis* and any others you wish to save; a good way to save the seed is to tie the heads in thin muslin or mosquito netting bags so that when the heads open and distribute the seed it will be retained in the bags instead of scattered abroad over the surface of the water.

LIFT AND POT YOUR WINTER PLANTS.—There is nothing whatever gained by letting our winter-blooming plants that are still planted out of doors stay there any longer, get them lifted and potted or planted out in greenhouse benches as the case may be. Among these plants may be mentioned carnations, libonias, eupatorium, stevia, *Solanum capsicastrum*, bouvardia, chrysanthemum, begonia, cestrum, and the like.

LIFT AND POT YOUR CACTI.—We have always had the best success with cacti when we planted them out of doors in summer, and lifted and potted them early in September, before there was danger of the cold nights and rains doing them any harm. The little cushion cacti (mammillaria, etc.,) are far more easily spotted by rain, and damp cold nights than the others and we had better begin with it. Get them under cover, be this a frame or a stoop, or in a greenhouse. Before potting them look out for mealy bugs about their roots, and if you find any be sure to clean them away. In the greenhouse this pest is at home everywhere, but on inside plants it prefers the root.

THE NEW MALTA SQUASH which was illustrated and described in GARDENING, page 105, December 15, '95, and of which we got seed for trial from Mr. Wood is now in vigorous growth; we have it in hard clay soil where it is allowed to spread out on the ground, and in good soil where we have trained it to cover an old apple tree, but in neither case has it set a good crop of fruit, and it is so late that none of the fruit it has set can ripen with us before frost. It evidently requires a more southern climate.

LET THE ALTHEAS RUN LOOSE.—In Gordon Park the other day we noticed a lot of altheas in bloom in front of belts and groups of trees, they had been cut in hard last winter and are now thick headed specimens. Now this is all right in the garden or in some cases in shrubbery, but out in a broad park and forming the marginal planting in front of graceful trees the stiffness of clipping marred the effect; had the plants been left unpruned and to assume a long, waving contour, the effect would have been in keeping with the environment. But altheas are hard things to use in natural plantings in parks anywhere.

VINES ABOUT THE HOUSE.—Look at our front page picture, isn't it suggestive? Ten years ago that house was built on a sterile sand bed, behold it to-day. What a cheerful, homey, happy feeling its luxuriance of vines inspires. We needn't credit this to the glorious climate of California, we can go to Boston, Pittsburg or Chicago and get the same effect. Virginia creeper, akebia, actinidia, fragrant grape pine, wistaria, trumpet creeper and pipe pine will climb as high here and in as short a time as is shown on that building, then why don't we have more of it? Every vine here mentioned is hardy. Make good preparation for their roots, and plant the vines, and give them supports to climb on, and help them a little, and they will do the rest themselves. Pure laziness is the key to the external nakedness of our homes we would all like to have the vines if they'd grow up of themselves and in a night like Jonah's gourd, but we can't be bothered to either plant them or care for them should others set them out. Now step out of your half-hearted efforts and get a move on, and do something to make your homes the pride of your children and your neighbors and attractive to the humming birds.

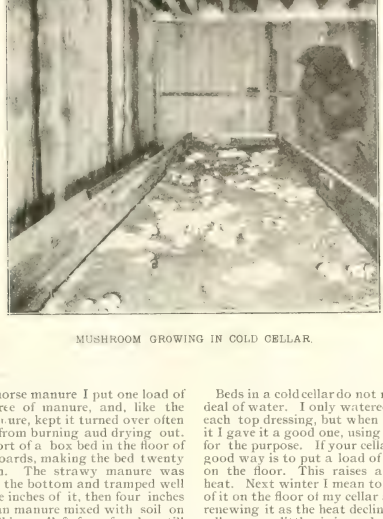
WHAT IS CRAB-GRASS?—W. C. Egan of Chicago asks: "What is the botanical name of the crab-grass, as known in this country? At the World's Fair, in the exhibition of pestiferous weeds crab-grass was labeled *Panicum sanguinale*. In a dictionary of English names of plants by Wm. Miller, 'crab-grass' or crab weed is given as *Polygonum aviculare*. A writer in a recent number of a paper devoted to floriculture speaks of 'Scutch grass' or 'Bermuda grass' under the name of *Cynodon dactylon*, the habits of which as he described them are similar to that grass which I understand is known as crab-grass." The crab-grass of your garden, this park, and elsewhere in North America is what you found at the World's Fair and the name there given is the proper name of it.

Mushrooms.

MUSHROOM GROWING IN A COLD CELLAR.

There is nothing to hinder the amateur who has a cellar under his barn or outhouse to grow a few mushrooms in it for his family, providing the cellar is dry and that the temperature does not fall below 24°. I grew a fine crop of mushrooms in such a cellar last winter. Out of a bed twenty-three long by four feet wide I picked between 90 and 100 pounds of the finest mushrooms, weighing them after the stems were cut off. The bed was made up on the 27th of November and spawned eight days later, and the first mushrooms were cut on the 11th of February, and at that time the temperature of the house was 28°, and it went often down as low as 22°, but by a little extra covering a good crop was raised. To the amateur who would like to try and grow a few mushrooms I will tell him how I made up that bed and took care of it.

I went to the manure pile and got a lot of long strawy manure which was quite wet and threw it all together into a pile in much the same way as one would get a lot of hot bed manure together; after I had enough I turned it over every other day till the rank heat had left it, then it was ready for the bed. Also in the mornings I went into the horse stable and got a lot of pure horse manure, shaking out most of the long straw. This I gathered until I had enough to put a layer four inches deep over the strawy manure. In



MUSHROOM GROWING IN COLD CELLAR.

this clean horse manure I put one load of soil to three of manure, and, like the strawy manure, kept it turned over often to keep it from burning and drying out. I made a sort of a box bed in the floor of hemlock boards, making the bed twenty inches high. The strawy manure was then put in the bottom and tramped well down, nine inches of it, then four inches of the clean manure mixed with soil on the top. This was left for a few days till the temperature of the bed had declined to 95°. The bed was then spawned, putting the pieces of spawn about nine inches apart. A good size to make the spawn is to cut a cake in about fifteen pieces. I put the spawn about an inch and a half deep into the manure bed. After the bed was spawned I went over it again and firmed it well with the back of a spade. The bed was then allowed to stand in this way for eight days, when I put on a layer of soil an inch deep all over it and firmed it down with a spade; that finished the work. I then got some straw and filled in the rest of the bed. The bed being twenty inches deep that left an empty space of about six inches over the straw. I put some boards over it and left it in that way for six weeks; the straw was then cleaned off and lath strips nailed across the bed to let the boards rest upon. The boards were then put over the bed as close as they could be placed and some old bags put over the boards so that the frost could not get near the bed. After the first crop was taken a layer of soil mixed with old cow manure from an old pasture and put through a half inch sieve was put on; just enough to cover the bed. Mushrooms seem to like cow manure for a top dressing, as I tried part of the bed with soil alone and the other part mixed with cow manure, and by far the best crop was taken off where the cow manure was. I tried this in different ways and found that the crop did best where the soil and cow manure was used for a top dressing. Of this bed there were seven spurts or crops cut, and the little snap shot picture I send you was taken when the fourth crop was past its best.

The house was kept very dry, that is to say no water was allowed to spill on the floor while we were watering the beds.

Beds in a cold cellar do not need a great deal of water. I only watered mine after each top dressing, but when I did water it I gave it a good one, using a fine spray for the purpose. If your cellar is large a good way is to put a load of hot manure on the floor. This raises a nice moist heat. Next winter I mean to keep a load of it on the floor of my cellar all the time, renewing it as the heat declines. In cold cellars very little air is needed before the warm days of spring come, then I give plenty of it. If your manure gets too dry before you make up your beds don't be afraid to put the hose on to it, as dry manure is not nearly so good as moist manure. I always give each barrowful of manure a pail of water as I bring it out of the stable, and this seems to make it right. Be sure when you pick a crop that you pick it clean; if there are any dead mushrooms pick them out by the roots, then top-dress the bed. Now is the time to get your manure together before cold weather comes; it will help you out greatly. I made up my first bed the 25th of August; I expect to be able to pick mushrooms by the end of October.

DAVID FRASER.
Mountain Side Farm, Mahwah, N. J.

MUSHROOMS IN THE CELLAR.—P. W. S., Kansas City, writes: "I have now taken GARDENING for two years, and have become a little interested in the mushroom articles, and want to try my hand at it this fall, provided I can. I have a cellar about 18x35 feet under the dwelling, and have thought of using this, but my wife is afraid it will be unhealthy, and before going further into the matter I wish to know whether such will be the case. It never freezes in the cellar and would be a good place if there is no danger from living over the beds." *Ans.* This subject is handled in our book, "Mushrooms; How to Grow Them." If the manure is properly prepared before it is put into the cellar there will be no offensive odor from it, neither will it be unhealthy. But don't introduce rank, fresh, hot manure into your house cellar. Prepare the manure in a shed or elsewhere away from the house, and when it is ready for building into beds spread it out to cool, then bring it into the cellar and make up the beds with it. After the beds are cased with earth there can not be anything offensive emitted from them.

The Fruit Garden.

FRUIT TREES FOR AN AMATEUR'S GARDEN.

No more difficult task can be assigned one than to formulate an infallible list of fruits for the entire country. It is the one subject upon which fruit growers in different sections can not agree. The following, however, may be depended upon in most districts of the Middle States as combining good quality with reliability in producing crops:

FOR TWELVE APPLES.

In the proportion of three summer, three autumn and six winter, a good suggestive list might be given as follows:

Yellow Transparent, one of the Russian varieties, heads the list for earliness. It is a pleasant juicy fruit of medium size, and commences bearing at an early age. Red Astrachan is now too well known to describe, but its fine size, beautiful red color, and rich acid flavor entitles it to extensive notice. Early Harvest is another popular old apple of undoubted merit, with a handsome yellow skin, pleasant sprightly flavor, and abundant crops.

For autumn the Gravenstein must not be omitted in any list. It is large, showy, with a fine sub-acid flavor, and is altogether first class. The Jefferis is simply unsurpassed by any fruit of its season. In size rather large, prettily striped, very rich, tender and juicy. The Maiden's Blush is an old popular variety of undoubted excellence, succeeding well everywhere. Its cooking qualities are also of the best. Skin yellow with a bright red cheek.

For winter, we must of course start with the well known Baldwin, although the fruit is liable to drop before the proper picking season. However its productiveness, good quality, fine appearance and long keeping quality, render it indispensable. Ben Davis is the great apple for the south and west, as well as being profitable in the eastern states. Its large size, handsome striped skin, and good quality make it very popular where known. In the Smokehouse we have a Pennsylvania fruit that leaves little to be desired. Large and beautiful, with a rich flavor, it is indeed difficult to surpass. The York Imperial is another Pennsylvania apple that always does well, and so far as known succeeds well in all sections of the country. It is of large size, white shaded with crimson, with a firm, crisp, juicy flesh and sub-acid flavor. It keeps well into spring. Grime's Golden is not so well known as its merits deserve. Although only of medium size, its rich golden-yellow color, crisp, tender, juicy flesh and peculiar aroma, combine to make it one of our very best winter apples. For the sixth variety of late keepers I should select personally the Dickinson, having known it well for many years. Size very large, beautifully streaked with red, with a mild sub-acid agreeable flavor. The other candidate for this position would possibly be Paragon or Arkansas Black, which closely resembles the old Winesap, and keeps well until April. It is very vigorous, hardy and productive.

FOR TEN VARIETIES OF PEARS.

Ripening from early to late in the season, the Manning's Elizabeth although small

in size, combines many excellent properties. Very beautiful, sweet and sprightly and bears well. Clapp's Favorite, resembling the Bartlett, is next in order, and for reliability combined with beauty and good quality, should have a place in every list. The well known Bartlett completes our list of three summer pears, and is justly entitled to be classed as the most valuable and reliable variety in the entire catalogue of fruits.

In the autumn varieties Anjou perhaps heads the list. It combines the excellence of large size, attractive appearance, with perfumed buttery melting flesh. Ripening late also makes it very valuable, as its season is usually from October to December. Idaho, one of the promising new pears, is certainly worthy of an extensive trial. It is so large, beautiful, and excellent in quality, combined with extreme hardiness and productiveness, that for an early autumn variety, it may be embraced in our list. The Kieffer, although bitterly denounced as worthless has gradually worked its way into popular favor on its own merits. Although not a first class fruit it is unsurpassed for canning, and is so hardy and reliable that every garden should possess at least one tree. The old-time Seckel remains at the head of all pears for its matchless flavor, and when well grown and properly ripened for its decided beauty. Rather small in size, it certainly compensates the grower by its other first class qualities. Vermont Beauty is certainly at the head of new candidates for popular favor. Of medium size, great beauty, delicious quality, very productive and a good keeper. The Rutter might well be classed as an early winter pear, as it keeps well, is of large size, yellowish russet in color, juicy, melting and slightly vinous. Very good in quality.

For winter, perhaps the Lawrence is the most reliable and best, especially for those who are partial to a sweet fruit. It is not large, of a light yellow color, buttery, rich and aromatic.

THREE CHERRIES.

Out of the long list of valuable cherries, it is indeed difficult to select three that are suited to the needs of a family. However, all things considered, the Napoleon for dessert is about as valuable as any. Of large size, white with red cheek, and a firm, juicy sweet flesh. It is very reliable and prolific everywhere. Early Richmond for cooking purposes can not well be excelled. It is enormously productive, comes quickly into bearing and is entirely hardy. Another tart cherry is the Montmorency, resembling the preceding in many ways, but earlier and larger. It is very productive and fine.

FOR TWO PLUMS.

It will be as well recommend what is known as the "Japan" section, owing to their reliability, hardiness and productiveness. Among these the Abundance, a large showy variety ripening early in August, is perhaps about the best. The Burbank is a good second, maturing during the last of August.

PEACHES.

In a selection of fine peaches for general cultivation for family use the following may be recommended: Early Rivers is about as good as any of the very early varieties, although inferior in quality to the later kinds. Stump-the-World is beyond a doubt one of the finest peaches known. Its large size, beautiful appearance and excellent quality are unsurpassed. Crawford's Late is an old popular variety that cannot be dispensed with for the amateur's garden. Globe is one of the newer peaches, resembling the preceding, but if possible even more valuable. The Smock for a very late variety must always be embraced in the smallest list. It is so enormously productive and reliable, that no collection is complete without it.

JOSIAH HOOPES.

West Chester, Pa., Aug. 22, '96.

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APPLES.

For Summer.—Yellow Transparent, Duchess of Oldenburg.

For Autumn.—Alexander, Gravenstein.

For Winter.—Golden Russet, Ontario, Ben Davis, Hubbardson's Nonsuch.

PEARS.

Summer.—Clapp's Favorite, Giffard, Tyson, Bartlett.

Autumn.—Hardy, Flemish Beauty, Superfin.

Winter.—Anjou, Goodale.

PLUMS.

Lombard, Pond's Seedling, Yellow Egg.

CHERRIES.

Governor Wood and Black Tartarian, sweet; and Early Richmond and Morello, sour.

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The Lawn.

THE LAWN.

Now is a good time to repair your old lawn or lay down a new one, by attending to this right away, either as regards sodding or sowing, the grass will get a good start before winter sets in. In the case of old lawns, if there are any bare spots it will be well to dig them over, breaking fine and pulverizing the ground, adding some fine-rotted manure to it, and sod the patches; or if you cannot get good sods sow some grass seed on the clear spots, and tread it in with the feet or rake and roll it in, and leave all level. Red Top and Kentucky blue grass, each alone or both together, make our finest lawns, and in clay grounds use plenty of white clover with them.

Weeds in old lawns will be showing themselves again; broad-leaved plantain, docks, chickweed and moss are apt to be troublesome again in fall. The plantain, docks and dandelions have to be plucked or cut out, and the moss and chickweed raked out with steel-toothed rakes, and the ground should then be given a good top-dressing of fine rich soil to encourage the grass to grow.

In preparing a new lawn have the ground evenly graded, deeply plowed or dug, well enriched and mellow, then rake it level and smooth and sow the seed, which should be raked in and then tramped or roll it. All this sort of work that is done now eases up on the rush of work in spring. In making a lawn be careful that all the hollows in it caused by the removal of tree roots or rocks are well filled and solidly packed from the bottom up so that no sags may show there in later years. We always prepare our grass seed for sowing by mixing it with moistish sand or light loam sifted through a fine sieve, say half the bulk of loam and half of seed; if this be well mixed on the barn or other floor you can sow it easily and evenly, no matter if there is considerable wind blowing.

Early in summer we prepared several acres of new lawn, but did not sow it in grass for two reasons; first we were afraid the season was so far advanced and the heat and drouth of summer so near that the young grass wouldn't get a good start in life before it would be killed out; secondly because there seemed to be a deal of rough grass seed in the ground. A heavy sole of natural grass sprang up immediately, giving the ground a fine coating of green, but this grass is the annual barn grass, and it would all die this winter and leave the ground as bare as it was in spring. Instead of allowing this, however, we are going to plow over all of this newly prepared land, harrow it fine, rake off the old grass roots, and sow afresh with Red Top and Blue Grass.

TEXAS STAR THISTLE.—E. O. N., Tennessee, sends us a flower of this beautiful annual (*Centaurea Americana*) for name. It is an easily-grown, tall-stemmed, large, pretty purple-flowered species well worth growing in any garden. There is also a variety of it called *Hallii*, the same in every way as the parent except in the color of its blossoms, which are of a deep rich purple. Grow both, they are worth having.

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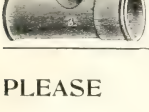

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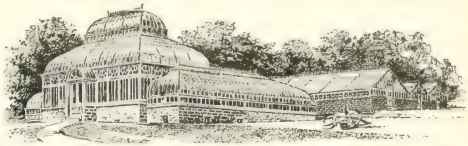

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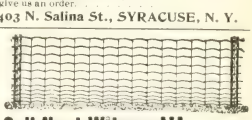

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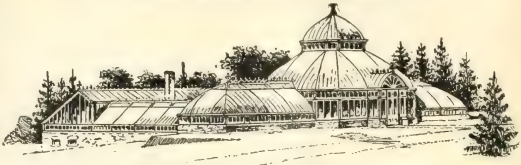

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